CONSTRUCTION DOCUMENTS — PERMIT SUBMISSION SET

Construction Document Specification Package

Modern Tropical Raised Home — CD-01

PROJECT REFERENCE

Tropical Raised Home — CD-01 | Osbornsville, NJ region | Coastal Jurisdiction TBD

AIA PHASE DESIGNATION

Phase 3 of 3 — Construction Documents (CD) | Permit Submission Set

DOCUMENT DATE

May 8, 2026

REVISION

CD-01 — Initial Construction Document Issue

PROJECT LEAD / ARCHITECT OF RECORD (INTERN)

Lucian DeMarco, NCARB Intern #692-666 | Pursuing ARE Registration

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CODE BASIS

Florida Building Code (FBC), 8th Edition | IBC 2021 | ASCE 7-22 | IECC 2021

NEC 2023 | IPC 2021 | IMC 2021 | NFPA 13 | Miami-Dade NOA (all openings)

REVISION HISTORY

Rev. No.	Phase	Description	Date	Issued By
SD-01	Schematic Design	Initial schematic design package, massing, program confirmation, site plan	May 2026	Lucian DeMarco
DD-01	Design Development	Design development package — full floor plans, elevations, material selections, preliminary MEP coordination	May 8, 2026	Lucian DeMarco
CD-01	Construction Documents	Full permit-ready construction document specification package — THIS DOCUMENT	May 8, 2026	Lucian DeMarco

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⚠ IMPORTANT PROFESSIONAL DISCLAIMER

These documents are prepared by **Lucian DeMarco, NCARB Intern #692-666, Pursuing ARE Registration**. All structural, MEP, and civil drawings require licensed Engineer of Record (EOR) stamps prior to permit submission. These specifications are not a substitute for licensed professional engineering review. The Contractor, subcontractors, and material suppliers are responsible for verifying all dimensions, conditions, and code requirements in the field. Calibration Co. and Lucian DeMarco make no warranty of fitness for a particular purpose beyond the express scope of services agreed upon with the Owner.

Table of Contents

Section 1 — General Project Information & Code Compliance Matrix

1.1 Project Description | 1.2 Building Data Table | 1.3 Code Compliance Matrix | 1.4 Special Conditions

Section 2 — Division 01: General Requirements

01 10 00 Summary of Work | 01 20 00 Price and Payment | 01 25 00 Substitutions | 01 30 00 Administrative Requirements | 01 40 00 Quality Requirements | 01 50 00 Temporary Facilities | 01 60 00 Product Requirements | 01 70 00 Execution and Closeout | 01 78 00 Closeout Submittals

Section 3 — Division 02: Existing Conditions

02 41 00 Demolition | 02 30 00 Subsurface Investigation

Section 4 — Division 03: Concrete

03 10 00 Forming | 03 20 00 Reinforcing | 03 30 00 Cast-In-Place Concrete | 03 40 00 Precast

Section 5 — Division 04: Masonry

04 22 00 Concrete Unit Masonry

Section 6 — Division 05: Metals

05 12 00 Structural Steel | 05 16 00 Shear Studs | 05 30 00 Steel Decking | 05 50 00 Metal Fabrications | 05 71 00 Decorative Stairs | 05 73 00 Railings

Section 7 — Division 06: Wood, Plastics, and Composites

06 10 00 Rough Carpentry | 06 20 00 Finish Carpentry | 06 41 00 Casework | 06 43 00 Wood Stairs | 06 60 00 Plastic Composites

Section 8 — Division 07: Thermal and Moisture Protection

07 10 00 Waterproofing | 07 20 00 Insulation | 07 40 00 Roofing Panels | 07 50 00 Membrane Roofing | 07 60 00 Flashings | 07 70 00–07 90 00 Accessories, Firestopping, Sealants

Section 9 — Division 08: Openings

08 11 00 Metal Doors | 08 14 00 Wood Doors | 08 32 00 Sliding Doors | 08 36 00 Entry & Roll-Up Doors | 08 44 00 Curtain Wall | 08 51 00 Windows | 08 71 00 Hardware | 08 80 00 Glazing

Section 10 — Division 09: Finishes

09 21 00 GWB | 09 30 00 Tiling | 09 64 00 Wood Flooring | 09 90 00 Paints and Coatings

Section 11 — Division 10: Specialties

Section 12 — Division 11: Equipment

Section 13 — Division 12: Furnishings

Section 14 — Division 13: Special Construction (Hot Tubs, Neon)

Section 15 — Division 14: Conveying Equipment

Section 16 — Division 21: Fire Suppression

Section 17 — Division 22: Plumbing

Section 18 — Division 23: HVAC

Section 19 — Division 26: Electrical

Section 20 — Division 31: Earthwork

Section 21 — Division 32: Exterior Improvements

Section 22 — Warranty Summary Table

Section 23 — Submittal Schedule

Section 24 — Project Contacts Directory

Section 1 — General Project Information & Code Compliance Matrix

1.1 Project Description

The project consists of the design and construction of a new three-story, single-family tropical residence raised on reinforced concrete drilled piers above an assumed base flood elevation (BFE) of 9’-0” NGVD. The residence is located within a coastal jurisdiction subject to the Florida Building Code (FBC) 8th Edition, ASCE 7-22 wind provisions, and FEMA/NFIP flood requirements. The exact jurisdiction is to be confirmed by the Owner and General Contractor prior to permit application.

The building program includes a ground-level under-house zone (Level 0 / L0) encompassing a workshop bay with hydraulic vehicle lift, under-house lounge and entertainment area, a hot tub terrace, covered parking for two vehicles, and utility mechanical equipment. Level 1 (L1) constitutes the primary elevated residential floor with open-plan great room, chef’s kitchen, dining area, primary suite, and a covered deck overlooking the site. Level 2 (L2) accommodates guest suites, additional bedrooms, a laundry room, and open-air terraces with cable rail guardrails. The rooftop level features a landscaped terrace, a structural saltwater hot tub, rooftop mechanical screen enclosure, pergola structure with string lighting, and PV solar-ready conduit infrastructure.

The architectural character is modern tropical: clean horizontal lines, deep overhanging eaves, Trex composite decking at all exterior platforms, stainless and charcoal-gray aluminum metal accents, expansive impact-rated glazing, and lush integrated landscaping including orange and fig trees, hanging planter systems with drip irrigation, and a crushed-shell landscape palette. The entry sequence is anchored by a 12’×6’ custom backlit impact-rated glass panel door with integrated neon L-accent lighting, steel and tropical hardwood stair with cable rail, and an illuminated address sign.

The structural system combines Type IA construction at L0 (reinforced concrete piers, CMU perimeter enclosure, composite steel deck at L1 level) with Type VB light wood-frame or engineered lumber construction at upper floors, per the mixed-occupancy construction type provisions of FBC/IBC. All

structural design is subject to final Engineer of Record (EOR) calculations, signed and sealed drawings, and special inspections as specified herein.

1.2 Building Data Table

Parameter	Description / Value	Notes / Verification Required
Primary Occupancy Classification	R-3 (Single-Family Residential)	Confirm with AHJ; A-2 accessory interpretation for under-house entertainment area
Accessory Occupancy	A-2 (Assembly, under-house area) per local code interpretation	Confirm classification and separation requirements with AHJ
Construction Type — Level 0 (L0)	Type IA (Reinforced concrete piers, CMU enclosure, composite steel deck)	EOR to confirm type per structural system
Construction Type — Levels 1–3 / Roof	Type VB (Wood frame, engineered lumber)	Mixed construction type; confirm per FBC/IBC provisions with EOR
Number of Stories Above Grade	3 above grade + rooftop terrace level	Rooftop is open terrace, not a conditioned floor
Building Height	37’-0” at mean roof height	Confirm per FBC/IBC definition; measure from grade to mean of highest roof
Total Conditioned Area	Approximately 4,200 SF	To be confirmed by final floor plan area tabulation
Total Gross Area (incl. decks, under-house)	Approximately 6,400 SF	Include all covered and uncovered floor area per applicable code definition
Automatic Sprinkler System	Not required for R-3 under 5,000 SF conditioned area	Verify with local AHJ for any local amendments to FBC requiring sprinklers
Fire Separation Distance	N/A — Single-family detached; confirm setbacks with AHJ	Confirm property line setbacks per local zoning code
Accessibility (ADA)	R-3 exempt; ADA path of travel from grade to entry recommended	Stair lift or accessible route flagged for Owner review; confirm local requirements
Occupant Load	R-3: Per FBC residential; L0 entertainment zone per A-2 if applicable	EOR/Architect to confirm if A-2 occupant load triggers egress upgrades

Parameter	Description / Value	Notes / Verification Required
Energy Code Climate Zone	IECC 2021 Climate Zone 1A (Florida coastal)	Confirm exact zone per jurisdiction; impacts fenestration U-value and SHGC limits
Flood Zone	Zone AE — BFE 9'-0" NGVD (assumed)	Confirm BFE from current FEMA FIRM panel for subject parcel before foundation design
Wind Exposure Category	Exposure C or D per ASCE 7-22	EOR to determine based on site; coastal sites may require Exposure D
Design Wind Speed (Vult)	160 mph minimum (HVHZ pending)	Confirm with EOR per ASCE 7-22 wind maps for jurisdiction; HVHZ status must be confirmed

1.3 Code Compliance Matrix

Code / Standard	Edition	Compliance Status	Application / Notes
Florida Building Code (FBC) — Building	8th Edition (2023)	Applicable — Design Basis	Primary regulatory code for all construction in Florida
Florida Building Code — Residential	8th Edition (2023)	Applicable — R-3 portions	Governs single-family residential design and construction
International Building Code (IBC)	2021	Referenced / Supplemental	Referenced where FBC defers to IBC; governs L0 assembly accessory use
ASCE 7-22	2022	Applicable — Structural Loads	Minimum design loads; wind, seismic, flood, gravity. EOR to apply.
IECC 2021 — Energy Code	2021	Applicable	Envelope R-values, fenestration U-0.28 / SHGC-0.24 max (CZ 1A)
ASHRAE 90.1-2019	2019	Referenced / IECC Supplement	Commercial energy compliance path where applicable
NEC 2023	2023	Applicable — Electrical	All electrical systems; AFCI/GFCI protection; NEC 680 (spas/hot tubs)
IPC 2021	2021	Applicable — Plumbing	All plumbing systems; pipe sizing, fixture units, drainage
IMC 2021	2021	Applicable — Mechanical	HVAC systems, ductwork, combustion air, ventilation

Code / Standard	Edition	Compliance Status	Application / Notes
NFPA 13 / 13D	2022	Reference Only (system not required)	If sprinkler required by AHJ amendment, NFPA 13D residential system applies
NFPA 70 (NEC)	2023	Applicable	Co-listed with NEC above
Miami-Dade NOA (Notice of Acceptance)	Current at time of permit	Applicable — All Openings	All windows, doors, sliding glass, curtain wall must have current Miami-Dade NOA if in HVHZ; confirm jurisdiction
FEMA / NFIP Flood Requirements	Current FIRM / FEMA 44 CFR	Applicable — Zone AE	All structural elements, mechanical, electrical elevated min. 1' above BFE; freeboard per local ordinance
ACI 318-19	2019	Applicable — Concrete	Concrete design standard; EOR applies for all concrete structural elements
AISC 360-22	2022	Applicable — Structural Steel	Steel design standard; composite deck design, connection design; EOR applies
AWS D1.1 / D1.3	Current	Applicable — Welding	Structural and sheet steel welding; special inspection required at all welds
TMS 402/602 (Masonry)	2022	Applicable — CMU	Masonry design and construction standard; EOR applies to all CMU design
AASHTO / FDOT (if public ROW work)	Current	As Required	Driveway apron, curb cut, sidewalk work in public right-of-way; confirm with local municipality

1.4 Special Conditions

⚠ COASTAL CONSTRUCTION ALERT

This project is located in a coastal zone subject to wind-driven rain, salt air corrosion, storm surge, and high-velocity hurricane wind loads. ALL products, materials, fasteners, and assemblies must be specified and installed to meet coastal durability and HVHZ performance requirements. Any product substitution that reduces corrosion resistance or wind uplift resistance is expressly prohibited without written Architect approval.

- **Flood Zone AE:** Assumed BFE 9′-0″ NGVD. Confirm BFE from current FEMA FIRM flood insurance rate map panel for the specific parcel before foundation permit application. All finished floor elevations at L1 to be set minimum 1′-0″ above BFE (or higher per local freeboard requirement). All mechanical, electrical, and plumbing equipment to be elevated above BFE per NFIP requirements.
- **HVHZ (High-Velocity Hurricane Zone):** If the jurisdiction is determined to be within the HVHZ (primarily Miami-Dade and Broward counties), Miami-Dade NOA is required for all exterior openings, roofing, and cladding. Confirm HVHZ designation with AHJ at permit pre-application meeting.
- **Coastal Corrosion:** All exterior metal fasteners to be Type 316 stainless steel or hot-dip galvanized. No plain steel, no aluminum in contact with concrete. All metal flashings to be stainless or copper. Salt spray exposure assumed for all exposed exterior materials within 1,000 feet of mean high water.
- **Wind-Driven Rain Penetration:** All window and door installations to be sealed with AAMA 714 or equivalent flexible weatherseal system. Head flashings required at all openings. Air barrier continuity to be maintained throughout envelope.
- **Geotechnical:** Sandy coastal soils are presumed. Bearing capacity, liquefaction potential, and lateral earth pressure to be confirmed by licensed geotechnical engineer prior to foundation design. See Section 3 (Division 02) for geotech report requirements.
- **ADA / Accessibility:** R-3 single-family residential is ADA-exempt. However, an accessible path of travel from grade to Level 1 entry is recommended for universal design. Owner to review and confirm whether stair lift rough-in or accessible ramp is desired. Flag for Owner sign-off prior to CD finalization.

Section 2 — Division 01 General Requirements

01 10 00 Summary of Work

1.1 General Scope

Provide all labor, materials, equipment, transportation, supervision, and all other items necessary or incidental to complete the Work as shown on the Contract Drawings and as specified herein. The Work includes but is not limited to the following:

- **Site Work:** Site clearing, tree protection, demolition of existing structures (if any), erosion and sediment control, site grading, earthwork, drainage infrastructure, driveway and hardscape paving, crushed shell landscaping, fencing and gates, irrigation system, planting, and water feature.
- **Concrete Foundation:** Drilled concrete pier foundations, concrete grade beams and pier caps, underslab vapor barrier, L1 composite metal deck with cast-in-place concrete, rooftop structural slab and thickened hot tub slab.
- **Structural Steel:** All primary and secondary W-shape floor beams, columns, baseplates, anchor bolts, shear studs, composite steel deck system, stair stringers, and all miscellaneous steel fabrications.
- **Concrete Masonry:** CMU perimeter enclosure walls at L0 under-house zone and workshop, CMU bond beams, waterproof coating, all reinforcing and grout.
- **Wood Framing:** All dimension lumber wall framing at upper levels, sheathing, hurricane strapping, all connections per framing plan and shear wall schedule.
- **Exterior Envelope:** All exterior wall assemblies including sheathing, weather-resistant barrier, rigid foam insulation, and cladding; all exterior waterproofing and flashing systems.
- **Roofing:** 60-mil TPO membrane roofing on tapered insulation board; standing seam metal roofing at sloped portions; all flashings, roof drains, scuppers, and roof accessories.
- **All Openings:** Custom impact-rated entry door D-01, workshop roll-up door D-02, all impact-rated sliding glass doors, curtain wall at stair tower, all impact-rated windows, all interior doors; all door hardware per hardware schedule.
- **Interior Finishes:** All gypsum wallboard, tile, engineered wood flooring, painting, casework, cabinetry, toilet accessories, and specialty finishes.

- **MEP Systems:** Complete plumbing rough-in and fixtures; HVAC multi-zone split system including all ductwork, ERV, and controls; complete electrical service, distribution, lighting, low-voltage, security, audio, and specialty circuits.
- **Specialty Systems:** Neon L-accent entry lighting system; rooftop and under-house hot tub installations; workshop hydraulic vehicle lift (OFCI/contractor-installed); whole-home irrigation system; outdoor kitchen rough-in; generator and automatic transfer switch; EV charging station; solar-ready conduit.
- **Landscaping & Site Improvements:** All planting per plant list, irrigation per zone schedule, crushed shell areas, hanging planter system with drip irrigation, front yard water feature, exterior path and string lighting.

1.2 Work Not Included in Contractor's Scope

- Owner-furnished, contractor-installed (OFCI) items are identified in the specifications; Contractor is responsible for installation, rough-in, and connection only.
- Appliances (see Division 11) are OFCI unless otherwise agreed in the Contract.
- Window treatments (Hunter Douglas / Lutron) are OFCI unless otherwise agreed.
- Audio-visual equipment beyond rough-in wiring and brackets is OFCI.
- Signage procurement (house number sign) is Owner's responsibility.

01 20 00 Price and Payment Procedures

The recommended payment schedule is structured on a monthly draw basis tied to verified percentage of completion per CSI Division. The following schedule governs:

Draw No.	Trigger / Milestone	Percentage of Contract	Notes
Draw 1	Mobilization / Contract Execution	10%	Release upon signed contract and evidence of required insurance and bonds
Draw 2–N	Monthly progress draws	Per % complete, less 10% retainage	Based on sworn contractor's statement and AIA G702/G703 application for payment

Draw No.	Trigger / Milestone	Percentage of Contract	Notes
Final Draw	Substantial Completion + Punch List Completion	Retainage release (10%)	Release upon issuance of Certificate of Occupancy, final inspections, and all closeout submittals received

All pay applications must be submitted on AIA Document G702 Application for Payment and G703 Continuation Sheet. Contractor must submit sworn contractor's statement listing all subcontractors and material suppliers with each draw request. Owner's lender may impose additional draw conditions; Contractor to coordinate accordingly.

01 25 00 Substitution Procedures

All materials and products specified are the basis of design. Substitutions will be considered only under the following conditions:

- Written substitution request submitted to Architect minimum **10 calendar days prior to bid closing** or prior to ordering if post-bid substitution is required for availability reasons.
- Substitution request must include: complete product data, test reports demonstrating equivalent performance, dimensional comparison, warranty comparison, and cost impact (both credit and any associated installation cost changes).
- Or-equal substitutions must demonstrate equivalent: (a) structural and thermal performance, (b) finish durability and warranty, (c) aesthetic match to design intent, (d) coastal durability and corrosion resistance, and (e) code compliance including NOA if applicable.
- Substitutions for HVHZ-rated products, impact-rated openings, or structural products will not be approved without EOR concurrence in writing.
- Architect's approval of a substitution does not relieve Contractor of responsibility for performance of the substituted product.

01 30 00 Administrative Requirements

Required Submittals Before Work Begins

Do not commence any portion of the Work until the following administrative requirements are satisfied:

- Signed Contract, Insurance Certificates (GL, Workers' Comp, Builder's Risk), and Payment/Performance Bond (if required)
- Preliminary construction schedule (CPM format preferred, minimum Gantt bar chart) identifying all critical path items including long-lead procurement
- Subcontractor/supplier list with license numbers
- Geotechnical Report submitted to EOR (CRITICAL PATH — do not begin foundation work without)
- Special Inspections Program (SIP) signed and submitted to AHJ
- All Division 01 submittals as specified

RFI Process

Submit all Requests for Information (RFIs) in writing via the designated project management platform (Procore or Owner-directed alternative). Each RFI must include: description of question, drawing and specification references, proposed solution or option, and date response needed. Architect will respond within **5 business days** of receipt of complete RFI. Emergency field RFIs may be submitted by phone with written follow-up within 24 hours.

Pre-Construction Meeting

Schedule and conduct a pre-construction meeting prior to mobilization, to be attended by: Owner, Architect (Lucian DeMarco), EOR, General Contractor superintendent, all major subcontractors (concrete, structural steel, MEP), and Special Inspector. Review: project schedule, submittals log, RFI process, site logistics, temporary facilities, safety plan, and special inspection program.

01 40 00 Quality Requirements — Special Inspections Program

⚠ SPECIAL INSPECTIONS REQUIRED

A Special Inspections Program (SIP) per IBC/FBC Chapter 17 must be submitted to and approved by the AHJ prior to permit issuance. The Contractor is responsible for engaging a third-party Special Inspector (SI) from an approved agency. The SI reports to the Owner and AHJ, not to the Contractor. All special inspection findings must be logged and submitted to the Architect and EOR.

Work Item	Inspection Type	Frequency	Inspector	Reference
High-strength concrete — piers, grade beams, L1 slab	Slump, cylinder fabrication, placement observation	Continuous during placement	Third-party Special Inspector	ACI 318, IBC 1705.3
Drilled pier drilling and concrete placement	Drilling observation, rebar cage, tremie concrete	Continuous	Third-party Special Inspector + EOR periodic	IBC 1705.8
Structural steel fabrication	Mill certificates, fabrication QC	Periodic — at fabrication shop	Third-party Special Inspector (AISC-certified)	AWS D1.1, IBC 1705.2
Structural steel erection and bolting	Plumb, level, bolt torque verification	Periodic	Third-party Special Inspector	AISC Code of Standard Practice
All structural welding	Visual + UT or MT as required by AWS D1.1	Continuous during welding operations	Certified Welding Inspector (CWI)	AWS D1.1, IBC 1705.2.2
Reinforced CMU masonry	Mortar, grout, reinforcing placement, cell fill verification	Periodic (Level B) or Continuous (Level A) per EOR designation	Third-party Special Inspector	TMS 402/602, IBC 1705.4
Window and door installation (NOA compliance)	Installation per NOA, anchorage, flashing	Periodic — all opening types	Third-party Special Inspector	Miami-Dade NOA installation requirements
Roofing membrane (TPO) installation	Seam welds, fastener pattern, flashing details	Periodic	Third-party Special Inspector	NRCA, manufacturer specifications
Nailing and sheathing — shear walls	Nail size, spacing, edge distance, sheathing type	Periodic	Third-party Special Inspector	FBC, IBC 1705.12
Soil/fill compaction	Nuclear density gauge testing — every 2,000 SF per lift or per EOR	Continuous during compaction operations	Geotechnical Engineer / Special Inspector	ASTM D1557
Workshop hydraulic lift	Anchor bolt embedment depth, location, torque	Continuous during installation	Third-party Special Inspector	BendPak installation

Work Item	Inspection Type	Frequency	Inspector	Reference
anchor bolt installation				manual, EOR requirements
Rooftop hot tub structural slab	Rebar placement, cover, concrete placement and consolidation	Continuous during pour	Third-party Special Inspector	ACI 318, Division 03 specifications
Shear stud installation (composite deck)	Stud placement, welding, torque test	Periodic — 10% minimum inspection per AWS D1.1 Chapter 7	Third-party Special Inspector (CWI)	AISC 360 Appendix 2, AWS D1.1
Hurricane strap and connector installation	Type, fastener count, and engagement per manufacturer and structural drawings	Periodic	Third-party Special Inspector	FBC, Simpson Strong-Tie installation specifications

01 50 00 Temporary Facilities and Controls

- **Temporary Power:** Contractor to arrange temporary electrical service from utility or provide diesel generator. Temporary power panel to be GFCI-protected throughout. All temporary wiring to be per NEC.
- **Temporary Water:** Contractor to arrange temporary potable water supply for construction and concrete curing. Meter with utility or use Owner-approved temporary connection.
- **Temporary Sanitary Facilities:** Provide and maintain a minimum of 1 portable toilet per 10 workers on site, serviced weekly minimum. Locate away from public view and storm drainage features.
- **Site Fencing:** Chain-link temporary fence minimum 6’ height around entire project perimeter throughout construction. Gates to be locked when site is unattended. Signage per OSHA.
- **Coastal Erosion Control:** Install silt fence, erosion control blanket at disturbed slopes, and stabilized construction entrance per applicable local stormwater permit. Coastal sandy soils are highly erodible — install filter fabric and staked straw wattles immediately upon any disturbance. Inspect after each rain event.

- **Tree Protection:** Install high-visibility orange construction fencing at drip line of all trees designated for preservation prior to any site clearing or grading operations. No equipment, materials, or spoils within fenced drip line zones.
- **Staging Area:** Coordinate with Owner and Architect to establish staging and material storage areas that do not conflict with preserved vegetation, site drainage, or neighbor access.
- **Site Safety:** Contractor solely responsible for job site safety per OSHA 29 CFR 1926. Submit Site Safety Plan prior to mobilization.

01 60 00 Product Requirements

Provide products that are new, unused, undamaged, and in first-class condition. Do not incorporate salvaged, used, or refurbished materials except where explicitly approved in writing by the Architect. Coastal durability requirements apply to all products exposed to exterior conditions or salt air:

- All exterior fasteners: Type 316 stainless steel or hot-dip galvanized (minimum G185). No plain steel, no electroplated zinc.
- No aluminum alloy in direct contact with concrete or masonry.
- All exterior metal flashings: 20-oz copper or 26-gauge stainless steel. No galvanized steel flashings in salt air coastal zone.
- All HVHZ-rated products: provide current Miami-Dade NOA certificate with each submittal for applicable products.
- All adhesives, sealants, and coatings: verify compatibility with coastal UV and salt air exposure. Provide manufacturer's written coastal durability statement.
- Products must be stored in dry, protected conditions per manufacturer requirements. Products damaged during storage must be removed from site and replaced at Contractor's expense.

01 70 00 Execution and Closeout Requirements

Substantial Completion

Substantial Completion is achieved when the Work is sufficiently complete such that the Owner can occupy and use the project for its intended purpose. Contractor must request a Substantial Completion

inspection in writing with minimum 5 days advance notice. Architect will conduct inspection and issue a punch list. Contractor must complete all punch list items within 30 calendar days of Substantial Completion issuance. Certificate of Substantial Completion (AIA G704) to be issued upon agreement of date.

Final Completion Checklist

- All punch list items from Substantial Completion inspection completed and verified
- Certificate of Occupancy (CO) issued by AHJ
- All special inspection final reports submitted to AHJ and Architect
- All systems operational and tested (HVAC, plumbing, electrical, irrigation, neon, hot tubs, lift, generator, security)
- All as-built drawings submitted (see below)
- All O&M manuals and warranties submitted (see 01 78 00)
- Site cleaned, all construction debris removed, landscaping installed and watered in
- All keys, access codes, remote controls, and specialty system programming guides delivered to Owner
- Contractor training sessions completed for all specialty systems

As-Built Drawing Requirements

Maintain one set of marked-up Contract Drawings on site throughout construction, recording all field changes, substitutions, and deviations from contract documents. At project completion, submit a complete as-built set: (a) red-lined PDF scan of marked-up drawings, and (b) if BIM or CAD was used in coordination, updated CAD/BIM files. As-built drawings must reflect actual installed conditions including: pier locations, underground utility routing, MEP rough-in as installed, and any structural substitutions approved by EOR.

Owner/Operator Training

Provide minimum training sessions for Owner for each of the following systems: HVAC (Mitsubishi Hyper Heat multi-zone operation), generator and ATS operation, irrigation controller programming, hot tub operation and chemical maintenance, neon system programming, hydraulic lift safety procedures, and security/camera system. Document all training sessions with sign-off sheet.

01 78 00 Closeout Submittals

Closeout Document	Description	Minimum Warranty Period
Certificate of Occupancy	Original CO from AHJ	N/A
All Final Inspection Sign-Offs	Structural, MEP, roofing, special inspections, health department (if applicable)	N/A
Concrete Foundation Warranty	Contractor workmanship warranty	10 years structural defects
Structural Steel Warranty	Contractor workmanship + fabricator mill certificates on file	10 years structural defects
TPO Roofing Warranty	Manufacturer's 20-year NDL warranty + contractor workmanship	20 years manufacturer / 2 years contractor
Standing Seam Metal Roofing Warranty	Manufacturer warranty on Kynar coating and panel	40 years panel / 30 years finish
PGT WinGuard Windows Warranty	Manufacturer limited warranty, glass, frame, hardware	10 years glass / 5 years frame / 1 year hardware
Entry Door (D-01) Warranty	Manufacturer warranty on door, hardware, impact glazing	10 years per manufacturer
Mitsubishi HVAC Warranty	Contractor 1-year labor + Mitsubishi 12-year compressor / 5-year parts (registered)	12 years compressor / 5 years parts (registered) / 1 year labor
Kohler Plumbing Fixtures Warranty	Manufacturer limited lifetime warranty on faucets and trim	Lifetime on faucets; 1 year on toilets
Electrical Service and Panels Warranty	Contractor workmanship	2 years labor / 1 year manufacturer on panels
Neon / LED Accent System Warranty	Driver and fixture manufacturer warranties; programming guide in O&M manual	5 years driver / 3 years LED flex
Hot Tubs (both) Warranty	Manufacturer warranty — shell, equipment, plumbing	5 years shell / 2 years equipment (Bullfrog Spas or equal)
BendPak Vehicle Lift Warranty	Manufacturer structural and hydraulic warranty	5 years structural / 3 years hydraulic / 1 year electrical
Trex Composite Decking Warranty	Transcend series 25-year fade/stain manufacturer warranty	25 years (Transcend series)

Closeout Document	Description	Minimum Warranty Period
Irrigation System Warranty	Contractor installation + Hunter controller warranty	5 years controller / 2 years labor installation
Landscaping Warranty	Contractor to replace dead plant material within warranty period	1 year establishment warranty on all plant material
Generac Generator Warranty	Manufacturer warranty	5 years (Generac Guardian Series)
O&M Manuals	For all mechanical, electrical, plumbing, specialty systems, and appliances — 3-ring binders + digital PDF	N/A
Neon System Programming Guide	Detailed guide for all programmed light modes, WiFi bridge pairing, DMX controller settings	N/A
Hot Tub Operation Manuals	Both units — chemical balance, filter maintenance, winterization (if applicable), warranty registration	N/A
Hydraulic Lift Installation Certificate	Manufacturer-required installer certification upon completion	N/A
As-Built Drawings	Red-line PDF set; updated BIM/CAD if applicable	N/A

Section 3 — Division 02 Existing Conditions

02 41 00 Demolition

Perform all site clearing and demolition required to prepare the site for new construction. The following work is included:

- Remove all vegetation, shrubs, brush, and grasses within the building footprint and grading limits, except as specifically designated for preservation.
- **Tree Protection Plan:** Prior to any clearing, install high-visibility orange construction fencing at the drip line of all trees designated for preservation, including: all orange trees (Valencia Orange or Navel Citrus, minimum 3 trees), all fig trees (Brown Turkey or Chicago Hardy, minimum 2

trees), and any native palms or specimen trees designated by the Owner and Architect. No equipment, vehicle staging, spoils, or materials within fenced zones at any time.

- Existing structures, slabs, fences, and improvements within construction limits: remove in their entirety and haul off site. Confirm existence and extent with Owner prior to bidding.
- Underground utilities: before any excavation, call 811 (Sunshine State One Call of Florida or applicable state service) and allow minimum required response time for all utility marks to be completed. Do not excavate mechanically within 18" of any marked utility. Pothole to verify depth and horizontal location of all utilities within pier and trench alignment.
- All demolition debris to be removed from site within 48 hours of generation. No burning of debris on site.
- Salvage and stockpile any topsoil for reuse in planting areas, if of suitable quality; otherwise haul off and import clean planting soil.

02 30 00 Subsurface Investigation

⚠ CRITICAL PATH — GEOTECHNICAL REPORT REQUIRED

A licensed geotechnical engineer must complete the subsurface investigation and deliver a signed and sealed geotechnical report to the EOR prior to foundation permit application. Foundation design cannot be finalized without this report. Engage geotechnical engineer immediately upon contract execution. This is the single longest-lead critical path item that cannot be accelerated by the contractor.

The geotechnical report must include, at a minimum, the following information and analyses:

Requirement	Minimum Standard	Purpose
Number of soil borings	Minimum 3 borings — at representative pier locations	Characterize subsurface conditions across building footprint

Requirement	Minimum Standard	Purpose
Boring depth	Minimum 20’-0” below existing grade, or 10’ below bottom of pier bearing stratum — whichever is deeper	Ensure settlement and liquefaction analysis through competent stratum
Standard Penetration Testing (SPT)	ASTM D1586 — at 2.5’ intervals to 10’, then 5’ intervals to full depth	Soil density and bearing capacity characterization
Laboratory testing	Grain size analysis (ASTM D422), Atterberg Limits (ASTM D4318), consolidation testing (ASTM D2435) on cohesive samples if encountered	Soil classification, settlement prediction
Groundwater depth	Measured in all borings; seasonal high groundwater estimated from data and local records	Flood elevation, dewatering design, corrosion exposure assessment
Soil bearing capacity	Allowable and ultimate end-bearing and side friction values for drilled pier design	Pier diameter, length, and capacity design
Settlement analysis	Estimated total and differential settlement under design loads for pier foundation	Structural tolerance and serviceability
Liquefaction potential assessment	Per ASCE 7-22 requirements for coastal sandy soils; lateral spreading analysis if applicable	Coastal sandy soils are potentially liquefiable; EOR must address in design
Lateral earth pressure values	Active, passive, and at-rest coefficients for CMU and grade beam design	CMU wall and grade beam lateral design
Corrosivity assessment	Soil resistivity, pH, chloride content at pier locations	Epoxy-coated rebar and concrete mix design requirements
Drilled pier design recommendations	Recommended pier diameter, embedment, allowable capacity, installation method	Basis of pier design for EOR
Pavement subgrade recommendations	Subgrade bearing value for driveway and apron design	Concrete paving thickness design

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Section 4 — Division 03 Concrete

03 10 00 Concrete Forming and Accessories

Provide formwork designed, engineered, and constructed to support all loads during concrete placement without deflection, displacement, or distortion. Forms must be tight enough to prevent mortar leakage. Specific form types by element:

- **Drilled concrete piers:** Steel tube sonotube or Quiktube forms above grade, minimum 12" diameter (diameter per EOR). Below grade: excavated earth form, cased in unstable zones.
- **Grade beams:** Plywood forms, minimum 3/4" plyform or equivalent; brace and stake at maximum 4'-0" intervals.
- **Slabs (L1, rooftop):** Permanent composite metal deck (Vulcraft 2VLI or equal) serves as form; no additional forming required in field except at edges, openings, and perimeter pour stops.
- **Workshop slab-on-grade:** Earth form with compacted subbase; edge forms at perimeter and all control joints.
- Apply form release agent uniformly to all form contact surfaces before placing rebar cages. Use biodegradable release agent only in coastal/environmentally sensitive area.
- Chamfer strips: Install 3/4" × 3/4" chamfer strips at all exposed vertical concrete edges (pier caps, grade beams, wall corners) for durability and finish appearance.

03 20 00 Concrete Reinforcing

All reinforcing steel: ASTM A615, Grade 60, deformed bars. Epoxy-coated reinforcing bars (ASTM A775) required for all concrete within the coastal corrosion zone (confirm jurisdiction — assume required throughout this project given coastal site). All epoxy coating must be continuous and damage-free at time of concrete placement; repair coating damage per ASTM D3963 immediately before placement.

Rebar chairs and ties: plastic or stainless steel tie wire only. No plain black wire in contact with coastal exposure concrete. Chair size to provide specified cover as noted below.

Lap splices: minimum 1.3 × development length per ACI 318 Table 25.5.2 (Class B splice unless Class A demonstrated). Stagger splices in adjacent bars.

Reinforcement Schedule by Element (EOR to Confirm with Final Calculations)

Element	Vertical Bars	Ties / Stirrups	Cover (Exposed)	Cover (Buried/Slab)
Drilled Piers	(8) #8 vertical bars	#3 ties at 6″ o.c. in lap splice zones; 12″ o.c. elsewhere	3″ clear (sides)	N/A
Grade Beams	(4) #6 continuous top and bottom	#4 stirrups at 12″ o.c.	3″ clear (all faces)	3″ min. below grade
L1 Composite Deck Slab	N/A — composite deck mat only	#4 at 12″ o.c. each way above deck flutes (minimum)	3/4″ above deck	N/A (on deck)
Workshop Slab-on-Grade	N/A	#5 at 18″ o.c. each way	N/A	3″ clear below
Rooftop Structural Slab	N/A	#4 at 12″ o.c. each way; additional mat at hot tub zone	1.5″ top / 3/4″ bottom	N/A
Hot Tub Thickened Slab	N/A	(2) mats #5 at 9″ o.c. each way; 12″ total thickness	1.5″ top / 1.5″ bottom	N/A

03 30 00 Cast-In-Place Concrete

Concrete Mix Design Requirements

Element	f′c (psi)	w/c Ratio Max	Cement Type	Target Slump	Admixtures	Exposure Class
Drilled Piers	5,000	0.40	Type V (sulfate-resistant)	5″ max (tremie: 7″–8″)	Water-reducing (ASTM C494 Type A/F), no calcium chloride	W1, S2, C2
Grade Beams	4,500	0.40	Type V	4″–5″	Water-reducing admixture	W1, S2, C2
L1 Composite Deck Slab	4,000	0.45	Type I/II	4″–5″	Water-reducing admixture	W0, S0, C1
Rooftop Slab (incl. hot tub zone)	4,000	0.45	Type I/II	4″–5″	Water-reducing; air-entraining at exposed rooftop	W1, C1
Workshop Slab-on-Grade	4,000	0.45	Type I/II	4″ max	Fiber reinforcement optional (1.5 lb/CY polypropylene)	S0, C0

Element	f'c (psi)	w/c Ratio Max	Cement Type	Target Slump	Admixtures	Exposure Class
Driveway Concrete Paving	3,500	0.50	Type I/II	4" max	Optional fiber reinforcement	W0

Concrete testing: Test per ASTM C31 (cylinder fabrication) and ASTM C39 (compressive strength). Fabricate one set of 4 cylinders per 50 CY placed, or per placement day, whichever produces more sets. Break 1 cylinder at 7 days, 2 at 28 days, retain 1 as hold. Report all results to Architect and EOR within 24 hours of testing. Alert Architect and EOR immediately for any cylinder testing below 85% of specified f'c at 28 days.

Concrete placement: Do not free-fall concrete more than 5'-0" to avoid segregation. Use internal vibrator at 18" spacing maximum; do not vibrate through rebar cage. Begin curing immediately upon finishing: wet burlap and polyethylene sheeting for minimum 7 days on all structural concrete. Apply curing compound (ASTM C309 Type 1D) where wet curing is not feasible.

03 40 00 Precast Concrete

Pier caps may be formed and cast-in-place as part of the drilled pier construction, as specified above and detailed on structural drawings. If precast pier caps are proposed as a substitution, Contractor must submit full shop drawings to EOR for review and approval, including: mix design, reinforcement, lifting inserts, bearing area dimensions, and connection details to pier and structural steel column baseplate. Precast elements must be manufactured by an NPCA-certified precast plant.

Section 5 — Division 04 Masonry

04 22 00 Concrete Unit Masonry (CMU)

Provide CMU at all under-house perimeter enclosure walls and workshop walls as shown on the drawings. Specifications:

- **CMU units:** 8" nominal width, ASTM C90 Grade N, lightweight or normal weight per structural design. Hollow units with cells oriented vertically for grouting. Face shell mortar bedding.

- **Mortar:** Type S per ASTM C270 (proportioned or property specification). Portland cement, lime, and masonry sand. No masonry cement type N in any structural or exterior application.
- **Grout:** ASTM C476, fine grout, minimum 3,000 psi compressive strength at 28 days. Grout all cells as follows: all cells within 24" of door/window openings, within 24" of corners and wall intersections, and at maximum 48" o.c. between. EOR to provide grouted cell spacing on structural drawings.
- **Vertical reinforcement:** #5 deformed bar, ASTM A615 Grade 60, epoxy-coated, at all grouted cells. Lap to horizontal dowels from grade beam per structural drawings.
- **Horizontal joint reinforcement:** Dur-O-Wall standard truss type or equal, 9-gauge side rods with 9-gauge cross rods, stainless steel or epoxy-coated in coastal exposure. Install at every other course (16" o.c.) in all walls.
- **Bond beam:** At top of all CMU walls — provide U-block or lintel block bond beam with (2) #5 continuous horizontal bars, grouted solid.
- **Lintels at openings:** Precast concrete lintels or cast-in-place reinforced CMU lintel beams per structural drawings over all openings.
- **Waterproof coating (exterior face):** Thoroseal or equal, 2 coats minimum applied per manufacturer. Surface prep: wire brush clean, dampen, apply first coat by brush scrubbing into surface, second coat after first coat is firm. Extend coating 6" below grade.
- **Control joints:** Raked and tooled vertical control joints at maximum 25'-0" o.c. and at all wall intersections, changes in thickness, and at sides of all openings. Seal all control joints with backer rod and silicone sealant per Section 07 90 00.

Section 6 — Division 05 Metals

05 12 00 Structural Steel

Material Standards

Steel Product	ASTM Standard	Minimum Fy (ksi)
Wide flange shapes (W-shapes)	ASTM A992	50
Hollow structural sections (HSS)	ASTM A500 Grade C	50
Plates, angles, channels	ASTM A36	36
High-strength bolts	ASTM A325 (min. 3/4" dia.)	92 (min. bolt)
Anchor rods	ASTM F1554 Grade 55	55
Welding electrode (structural)	AWS A5.1/A5.5, E70XX minimum	70 (weld nominal)

Shop fabrication: per AWS D1.1 Structural Welding Code — Steel. All shop connections: bolted unless welded connections are specifically shown on structural drawings. Erection tolerance: per AISC Code of Standard Practice, Chapter 7.

Assumed Member Schedule (EOR to Confirm with Final Calculations)

Member / Location	Assumed Section	Span / Spacing	Notes
Primary floor beams — L1 (N-S direction)	W16×40	16'-8" span	EOR to verify for composite loading
Secondary floor beams — L1	W10×22	6'-0" o.c.	Framing into primary beams; composite with deck
Columns L0 to L1	W10×33	Per floor height	Bearing on pier cap baseplates
Columns L1 to L2	W8×31	Per floor height	EOR to confirm for reduced loads above L1
Rooftop primary beams	W16×45	Per framing plan	Increased section for rooftop loading
Hot tub zone transfer framing	W18×50	Per EOR	120 PSF design zone; EOR to verify
Column baseplates	3/4" min. thick A36 plate	4 anchor rods per plate	Size per EOR; F1554 Gr. 55 rods
Stair stringers	C12×25 steel channel	Per stair geometry	Exterior entry stair; see 05 71 00
HSS handrail posts	1.5" SQ HSS, A500 Gr. C	3'-0" o.c. max	Stainless steel at exterior; see 05 73 00

Coating and Corrosion Protection

All interior steel: SSPC-SP6 commercial blast, 2 coats zinc-rich epoxy primer (3.0 mils DFT each), 2 coats high-build epoxy finish. All exposed exterior steel (piers visible from exterior, stair components): SSPC-SP10 near-white blast, zinc-rich primer (Sherwin-Williams Zinc Clad II or equal), 2 coats high-build epoxy intermediate coat, 1 coat polyurethane topcoat in charcoal gray.

05 16 00 Shear Studs

Composite deck system: Nelson (or TRW or equal) 3/4" diameter × 4-1/2" length Type B headed shear studs, ASTM A108. Stud welding: through-deck welded per AWS D1.1 Chapter 7 and AISC 360 Appendix 2. Full composite or partial composite design per EOR. Stud spacing and layout per structural drawings. Special inspection of stud welding: periodic inspection with torque-and-tip verification per AWS D1.1.

05 30 00 Steel Decking

Composite floor deck: Vulcraft 2VLI (or approved equal), 2" nominal rib height, 18 gauge minimum, galvanized G90 coating per ASTM A653. Install per SDI Design Manual. Side lap fasteners (button punch or screws) at maximum 12" o.c. at all side laps. Perimeter pour stops at all slab edges and openings — formed from same gauge steel or heavier. Install deck sheets with ends bearing minimum 1.5" on steel supports. Deck openings for mechanical/electrical penetrations: frame all openings with supplemental angles per structural drawings. Submit shop drawings including layout plan, opening locations, and pour stop details.

05 50 00 Metal Fabrications

Provide all miscellaneous metal fabrications shown on the drawings and required to complete the work, including but not limited to:

- Stair stringers (see 05 71 00) and landings
- Guardrail and handrail posts at all balconies and decks
- Rooftop hot tub equipment screen framing: 2" square steel tube frame, powder coat charcoal gray, removable panels for equipment access
- Workshop hydraulic lift anchor sleeves: Schedule 80 steel pipe sleeve per BendPak XPR-10S installation manual; coordinate size, location, and embedment depth with EOR before concrete placement

- Custom entry door frame reinforcement: weld-in structural steel channel surround at D-01 opening in structural framing; submit shop drawings
- Hanging garden planter mounting brackets: 11-gauge steel angle brackets, powder coat charcoal gray, galvanized or stainless fasteners; rated for minimum 200 lb per bracket; submit load calculations to EOR for review if not shown on structural drawings
- All exposed metal fabrications: SSPC-SP3 power tool clean, epoxy primer, powder coat charcoal gray finish (RAL 7016 or similar) unless otherwise noted

05 71 00 Decorative Metal Stairs — Exterior Entry Stair

Exterior entry stair from grade to L1: steel channel stringers (C12×25 or per EOR) with open tropical hardwood treads — Ipe (Handroanthus spp.) 1-1/2" thick by full stair width, sanded smooth, treated with Penofin or equal exterior hardwood oil finish. Nosing profile: eased 1/4" radius. Risers: open (no risers) per modern tropical aesthetic — confirm IBC compliance for required opening limitations at open riser stairs. Cable rail infill: 1×19 stainless steel aircraft cable Type 316, 3-1/8" maximum clear spacing, horizontal runs, tensioned with Swageless or swaged terminal fittings. Posts: 1-1/2" square Type 316 stainless steel tube at 3'-0" o.c. maximum. Top rail: 1-1/2" square Type 316 stainless tube, continuous, smooth radius bends at turns. All cable rail design per ICC/IBC Section 1015 and ASTM A1023. Submit cable rail shop drawings with load calculations for Architect and EOR review.

05 73 00 Decorative Metal Railings — Deck Guardrails

All exterior deck and balcony guardrails: 42" minimum height above finished deck surface per IBC 1015.3. Aluminum extrusion rail system with either: (a) stainless steel 1×19 cable infill per 05 71 00 specifications, or (b) tempered glass infill (1/2" tempered or 9/16" laminated tempered, per IBC glass balustrade requirements), at Architect's direction per location. Post anchors: surface-mount or core-through type per EOR design. Powder coat finish: charcoal gray (RAL 7016). Rooftop parapet: 42" minimum height CMU or metal stud framed parapet with formed aluminum coping, color to match charcoal gray palette.

Section 7 — Division 06 Wood, Plastics, and Composites

06 10 00 Rough Carpentry

Lumber Specifications

- All dimension lumber: Southern Yellow Pine (SYP), No. 2 or better grade, kiln-dried, moisture content ≤19% at time of installation. Visually grade-stamped by agency accredited by ALSC.
- All lumber in contact with concrete, masonry, or within 6" of grade or moisture: Pressure Treated (PT) per AWPA UC4B (ground contact) or UC3B (above ground, exposed). Treatment: ACQ or CA-C. All PT hardware: hot-dip galvanized per ASTM A153 or Type 316 stainless steel. No electroplated zinc hardware at PT lumber.
- All exterior wall framing (Level 2 and above, wood frame): 2×6 SYP at 16" o.c. for exterior walls (provides cavity depth for R-21 batt insulation). Interior partitions: 2×4 or 2×6 per layout. Double top plates on all walls, single bottom plate (PT where on concrete).
- Headers at all openings: per IRC/FBC span tables for applicable load and opening width; minimum LVL or doubled 2× lumber per structural drawings.

Hurricane Strapping and Connectors

⚠ HURRICANE STRAPPING — MANDATORY

All hurricane strapping must be clearly shown on framing plan and approved by EOR. Install all straps with the full complement of nails/screws specified by the manufacturer. No partial nailing of straps permitted. Special inspection required per Division 01.

- Rafter/truss-to-wall plate: Simpson Strong-Tie H2.5A at minimum; H10 or MSTA strap at end walls and high-uplift zones per EOR

- Shear wall hold-downs: LTT19A at all shear wall boundary conditions; SSTB28 anchor bolts at sill plates at 48" o.c. maximum (or per shear wall schedule)
- Ceiling joist/rafter at bearing: H1 at all conditions
- Post-to-beam connections: post caps per structural drawings

Wall Sheathing

Exterior wall sheathing: 1/2" CDX structural plywood per APA PS-1, Exposure 1 or Exterior. Do not use OSB sheathing at coastal exterior wall exposure. Nailing: 8d common nails at 6" o.c. panel edges / 12" o.c. field unless otherwise required by shear wall schedule (6"/6" or 4"/12" at shear wall zones per structural). Install sheathing with face grain perpendicular to studs, staggered joints. Apply weather-resistant barrier (WRB) over sheathing immediately after installation — do not leave exposed sheathing to rain for more than 24 hours.

06 20 00 Finish Carpentry

- **Interior window and door casings:** MDF or solid poplar, paint grade, profile per Architect's selection. Minimum 2-1/2" width.
- **Base molding:** 4" MDF colonial profile, paint grade throughout conditioned spaces.
- **Interior door frames:** Pre-hung assemblies with split jamb, solid core doors per Division 08. Shimmed, squared, and plumbed. All gaps caulked before painting.
- **Closet shelving:** Adjustable wire shelving systems (ClosetMaid or equal) in all bedroom closets. Primary suite: custom laminate shelving system with hanging rods, drawers, and shoe shelves per Owner selection and shop drawings.

06 41 00 Architectural Wood Casework (Cabinetry)

Kitchen Cabinetry

Flat-panel frameless Euro-style, full overlay, KCMA A161.1 certified, CARB2 compliant for formaldehyde emissions. Box construction: 3/4" furniture-grade plywood (no particleboard box construction). Drawer boxes: solid wood dovetail construction. Drawer slides: Blum Tandem Plus Blumotion undermount soft-close, full extension. Hinges: Blum Clip-Top Blumotion, soft-close. Hardware: integrated pulls or matte

black bar pulls per Owner selection. Upper cabinets: 42” height, standard depth. Base cabinets: 36” height, 24” depth standard. Island cabinets: per drawings.

Finish: painted white (Benjamin Moore OC-17 White Dove or equal) or light wood veneer as directed by Owner. Submit shop drawings for Architect review and Owner approval before fabrication.

Primary Bath Vanity

Floating 72” double vanity, waterproof phenolic or plywood box, waterproof finish. Undermount rectangular ceramic sinks (2). Surface-mounted 1/2” open shelf below. Countertop: quartz or stone per Owner selection. Hardware: matte black pulls.

Under-House Bar

12 LF bar at 42” bar height, 12” overhang for seating. Top: concrete cast-in-place or butcher block (Owner to select). Cabinetry below bar: frameless, plywood box, 2 access doors, 2 drawers. Beverage refrigerator rough-in cutout. Bar sink rough-in. Submit shop drawings.

All casework: submit shop drawings for Architect review minimum 4 weeks prior to fabrication. Field measure all locations after framing is complete and prior to shop drawing finalization.

06 43 00 Wood Stairs — Interior

All interior stairs (under-house access stair from L0 to L1, and any interior stair between upper levels): solid hardwood treads — Ipe or White Oak, 1-1/2” minimum thickness, full width of stair opening. Sand smooth to 120-grit minimum; finish with Bona Traffic HD or equal commercial-grade floor finish, 3 coats, satin sheen. Nosing: 1” maximum projection, 3/4” radius, non-slip grooved or abrasive strip. Risers: closed with solid wood if enclosed stair; open riser if open stair design is used and IBC opening dimension limits are met.

06 60 00 Plastic Composites — Trex Composite Decking

All exterior decking, perimeter walkways, front entry deck, rear deck, and rooftop deck: Trex Transcend Tropics series — Tiki Torch or Island Mist color as directed by Architect/Owner. Installation:

- Install per current Trex Installation Guide. Hidden fastener system: Trex Hideaway Universal Hidden Fastener System or equal compatible system. Maximum joist spacing: 16” o.c. for 90° installation, 12” o.c. for 45° diagonal installation.

- End joints: stagger minimum 2 joist spaces. All cut ends to receive Trex Touch-Up Pen or cut-end sealer.
- Ventilation: maintain minimum 3” clearance below deck boards for air circulation and moisture drainage.
- Substructure: aluminum (Fortress Building Products Evolution series or equal) or galvanized steel framing — no untreated or pressure-treated wood substructure at coastal elevated decks. Steel or aluminum joists and beams with stainless steel fasteners throughout.
- Blocking: solid blocking between joists at all board butt-joints and at deck perimeter per Trex Installation Guide.
- Trex 25-year limited residential warranty for Transcend Tropics series applies; warranty requires proper installation per Trex current installation guidelines. Document installation and retain records for warranty purposes.

Section 8 — Division 07 Thermal and Moisture Protection

07 10 00 Dampproofing and Waterproofing

- **Foundation waterproofing:** Apply 2-coat crystalline waterproofing system (Xypex Concentrate + Xypex Modified, or Thoroseal Foundation Coating) to all exterior faces of grade beams and pier caps. Surface prep: wire brush clean, free of oil, laitance, and efflorescence. Dampen surface; apply first coat by brush scrubbing into pores; apply second coat after first coat has reached initial set. Extend coating from finished grade elevation to bottom of footing. On Xypex: do not apply when ambient temperature below 45°F or when rain is forecast within 24 hours.
- **Under-slab vapor barrier:** 15-mil polyethylene vapor retarder per ASTM E1745 Class A at all slab-on-grade conditions (workshop floor). Lap all seams minimum 12” and tape with manufacturer-specified seam tape. Turn up at walls 6” and mechanically fasten. Seal all

penetrations (pipes, conduit) with compatible mastic. Do not place concrete on punctured vapor retarder — repair all holes before pour.

- **Rooftop deck waterproofing:** 60-mil TPO membrane (see 07 50 00) installed under entire Trex rooftop deck substructure. Slope substrate minimum 1/4" per foot to roof drains. Heat-welded seams throughout. Minimum 20-year no-dollar-limit (NDL) manufacturer warranty.
- **Balcony and deck waterproofing:** At all elevated wood-framed deck conditions (if any): traffic-bearing waterproof membrane (Tremco Vulkem 350 NF or Sika SealFlex or equal) over structural deck, up wall minimum 4" at all edges, sealed at drains. TPO preferred at concrete substrate decks.

07 20 00 Thermal Insulation

Assembly Location	Insulation Type	R-Value (Nominal)	Product Example	Notes
Exterior walls — cavity (2×6 stud)	Unfaced fiberglass batt	R-21	Owens Corning EcoTouch R-21	Kraft face toward warm-in-winter side (interior)
Exterior walls — continuous exterior	Rigid extruded polystyrene (XPS) foam board	R-6 (1" board)	Owens Corning Foamular 150	Over sheathing, under cladding; stagger joints; tape at seams
Total effective wall assembly	Cavity + continuous	~R-27 effective	—	Satisfies IECC 2021 CZ 1A requirements
Under L1 floor (composite deck perimeter)	Spray polyurethane foam (closed-cell) at rim joist; mineral wool batt at exposed deck soffit	R-19 (mineral wool); R-6.5/in (closed-cell SPF at rim)	Rockwool Safe'n'Sound or Comfortbatt	Air seal all penetrations and perimeter conditions with SPF
Roof assembly (above deck, under TPO)	Tapered polyisocyanurate board insulation	Minimum R-30 at lowest point	GAF EnergyGuard Tapered Polyiso	Sloped to drains per 07 50 00; SPF to fill gaps at all penetrations and perimeters

Assembly Location	Insulation Type	R-Value (Nominal)	Product Example	Notes
Attic / any sloped ceiling spaces	Spray foam (closed-cell) at roof deck underside, or batts at ceiling with ventilation	R-30 minimum	Icynene or Lapolla	Per EOR/MEP design; air seal required throughout

07 40 00 Roofing and Siding Panels — Standing Seam Metal Roofing

At all sloped roof portions (verify extent on drawings): 24-gauge Galvalume Plus steel, Kynar 500 PVDF two-coat finish, Charcoal Gray (RAL 7016 or custom to Architect's approval). 16" panel width, concealed clip fastener system, minimum 1-1/2" tall seam. Wind uplift rated minimum 160 mph per FBC/ASCE 7-22 requirements. Install over minimum 30# felt underlayment, self-adhering modified bituminous underlayment at all eave zones (min. 36" from edge), rake edges, and valleys. Provide continuous aluminum eave closure at all eave terminations. Cleat all rakes. Snap-lock or mechanically seamed panels per manufacturer. Lead time: verify with manufacturer; order immediately at contract execution.

07 50 00 Membrane Roofing — TPO

Low-slope and flat roof: 60-mil thermoplastic polyolefin (TPO) membrane, white, ENERGY STAR rated, ASTM D6878. Mechanically fastened in field at 12" o.c. with manufacturer's fastener plates; fully adhered at all perimeters within 3'-0" of edge, and at all penetrations and flashings. Heat-weld all seams minimum 1-1/2" wide. Install over minimum 1-1/2" tapered polyisocyanurate insulation board providing positive drainage minimum 1/4" per foot slope to all primary drains.

Manufacturer: Firestone UltraPly TPO, GAF EverGuard TPO, or Carlisle Sure-Weld — all to meet specified 60-mil minimum and 20-year NDL warranty. Installer must be manufacturer-certified applicator for warranty to apply. Submit manufacturer's certification of installer and warranty application documentation at substantial completion.

07 60 00 Flashing and Sheet Metal

⚠ COASTAL FLASHING REQUIREMENT

No aluminum flashings in coastal salt air conditions. All flashings must be 20-oz minimum copper or 26-gauge Type 316 stainless steel. Galvanized steel flashings are NOT acceptable in coastal exposure for this project.

- Through-wall flashings at all window and door heads: embedded in wall cavity, sloped to exterior drain
- Drip edges at all roof eaves and rakes: formed metal drip edge, installed over WRB at eaves, under WRB at rakes
- Kick-out flashings (diverter flashings): at all locations where roof edge meets a vertical wall — mandatory to prevent water intrusion into wall cavity
- Valley flashings: W-style open valley; 24" minimum width at bottom, expanding to 4" open at all points
- Step flashings at vertical intersections: individual step flashings woven with each shingle course; minimum 8" vertical leg by 10" horizontal
- Pipe penetration flashings: pre-formed lead or neoprene pipe boots, sealed with silicone; no painted galvanized pipe boots at coastal exposure

07 70 00 Roof and Wall Specialties

- **Roof drains:** Cast iron body, aluminum/cast iron dome strainer, clamping ring, standard sump, 4" outlet. Minimum 4 primary drain bodies at rooftop slab. Coordinate drain body heights with tapered insulation layout. Flash with lead or TPO prefabricated drain boot adhered to TPO membrane.
- **Scuppers (emergency overflow):** Formed stainless steel scupper boxes at perimeter parapet, 4" width minimum, 2" above primary drain rim elevation, 2" above finished roofing surface. Size per ASCE 7-22 / local drainage requirements.
- **Roof hatch:** Bilco Type S, insulated aluminum, spring-assisted lift, safety grating below. Provide ship's ladder from rooftop access point to hatch for maintenance access. Size minimum 2'-6" × 3'-0" clear opening.

- **Expansion joints:** At all changes in building massing and at maximum 150’ intervals in TPO membrane — Carlisle EPDM bellows expansion joint or equal.

07 80 00 Fire and Smoke Protection

Install approved firestopping at all through-penetrations of any fire-rated floor or wall assembly per the design. Use UL-listed system materials and installation per the applicable UL Design Number for each condition (pipe size, material, annular space). Intumescent pipe collars at all plastic (PVC/CPVC) plumbing penetrations through fire-rated assemblies. Document all firestop locations on a firestop inspection log submitted to Architect at closeout.

07 90 00 Joint Protection — Sealants and Caulking

- **Exterior joints — primary:** Dow 795 Silicone Building Sealant or Tremco Spectrem 2 silicone sealant. Apply over continuous closed-cell backer rod (Nomaflex or equal) sized 25% larger than joint width. Prime per manufacturer recommendations on all CMU and cementitious surfaces. Tool to concave profile. Color to match adjacent material.
- **Interior trim joints:** Paintable latex acrylic sealant at all trim-to-wall and trim-to-ceiling joints. Smooth tool, paint over.
- **Concrete control joints:** Hot-applied rubberized joint sealant (Crafco Roadsaver 221 or equal) at all concrete driveway and slab control joints. Clean joint, insert foam backer rod at proper depth.
- **Application conditions:** Do not apply sealant when substrate temperature is below 40°F or above 100°F, or when rain is forecast within 12 hours. All substrates must be clean, dry, and free of oil, dust, and previous sealant residue.

Section 9 — Division 08 Openings

⚠ ALL EXTERIOR OPENINGS — IMPACT RATED REQUIRED

Every exterior opening in this project — windows, sliding glass doors, entry door, curtain wall, and roll-up door — must be impact-rated for the design wind speed of 160 mph minimum (or higher per HVHZ jurisdiction). No exceptions. Miami-Dade NOA required for all openings if the project is within the HVHZ. Confirm jurisdiction before ordering any openings. Long-lead items must be ordered at or before contract execution.

08 11 00 Metal Doors and Frames

Hollow metal (HM) frames: 16-gauge cold-rolled steel, knock-down or welded as required. Apply at all fire-rated opening conditions (mechanical room, stair enclosure if rated). Mechanical room door: 20-minute labeled HM frame with solid core door, automatic closer, continuous hinge. Prime and paint at shop. Field touch-up all abraded areas before installation.

08 14 00 Wood Doors — Interior

Interior doors: 1-3/4" thick solid core flush door, 3'-0" × 8'-0" standard height unless noted on door schedule. Face veneer: paint-grade birch or MDF skin. Pre-hung assemblies with split jamb in 2×6 or 2×4 wall as applicable. Factory prime; field paint 2 coats per Division 09. All interior doors: minimum STC 28 solid core for acoustic privacy.

08 32 00 Sliding Glass Doors — Impact Rated

All exterior sliding glass doors: PGT WinGuard Series, thermally broken aluminum frame, Charcoal Gray powder coat per AAMA 2604 (5-year minimum warranty on finish). Laminated insulated impact glass: 7/16" minimum overall thickness with PVB interlayer. Multi-point locking hardware, ADA-compliant threshold (maximum 1/2" raised). Miami-Dade NOA: required if HVHZ; otherwise Florida Product Approval. Submit individual door card for each opening: size, type, NOA/PA number, design pressure, and test pressure. Lead time: 10-16 weeks; order at contract execution.

08 36 00 Entry Door D-01 — Custom Backlit Impact Door

⚠ LONG LEAD ITEM — ORDER AT CONTRACT EXECUTION

Entry door D-01 lead time is 14–20 weeks minimum. Do not delay order. Contractor must confirm manufacturer selection, submit shop drawings, receive Architect approval, AND place purchase order within 2 weeks of contract execution.

D-01: 12′-0″ wide × 6′-8″ tall (or as shown on drawings) custom impact-rated entry door. Specifications:

- Frame: thermally broken 6063-T5 aluminum extrusion, structural wall anchored per NOA installation
- Glazing: frosted laminated impact glass, minimum 8 panels, PVB interlayer, SHGC ≤ 0.24
- Backlit LED: warm white 3000K integrated LED strip in door frame reveal, 24VDC, low-voltage transformer in adjacent panel, dimmable, smart switch compatible
- Hardware: multi-point Assa Abloy or Hoppe impact-rated hardware, keyed entry function, 3 locking points minimum, matte black or charcoal gray finish
- Threshold: flush aluminum with EPDM seal
- Automatic closer: concealed overhead or floor-spring type
- Wind rating: 160 mph minimum impact rated; Florida Product Approval or Miami-Dade NOA as applicable
- Manufacturers: CGI Impact Resistant Windows & Doors, PGT Custom Series, or Fortress Hurricane Products; Architect to approve final manufacturer

08 36 00 Roll-Up Door D-02 — Workshop

Workshop roll-up door D-02: Clopay 4300 series commercial overhead door (or equal impact-rated commercial door), 16′-0″ wide × 10′-0″ tall. Wind load rating: minimum 150 mph per ASCE 7 design pressure. Galvanized steel sections with painted finish, insulated (R-12.9 minimum). Operator: LiftMaster 8500W jackshaft operator, 240V/20A, with battery backup and MyQ smart home capability. GFCI-protected circuit per NEC. Emergency manual release. Provide safety sensors (photoelectric) at bottom of opening per UL 325.

08 44 00 Curtain Wall — Stair Tower

Stair tower east-facing curtain wall: aluminum thermally broken curtain wall, Kawneer 1600 Wall System or equal, impact-rated glazing with laminated glass per Miami-Dade NOA. Glass: minimum 1" overall insulated laminated impact unit, SHGC ≤ 0.24, U ≤ 0.28. Frame: charcoal gray powder coat, AAMA 2604. Coordinate mullion locations and anchor conditions with structural stair tower framing — embed anchors in structural concrete or steel as detailed. Submit full shop drawings including anchor design, glass specifications, and NOA documentation for Architect and EOR review. Lead time: 14-20 weeks; order at contract execution.

08 51 00 Metal Windows — Impact Rated

All windows: PGT WinGuard aluminum, thermally broken frames, laminated insulated impact glass, Miami-Dade NOA (HVHZ) or Florida Product Approval. Frame finish: charcoal gray powder coat AAMA 2604. Glazing performance: U-factor 0.28 maximum, SHGC 0.24 maximum per IECC 2021 Climate Zone 1A. Types: fixed, single-hung, casement, or awning as shown on window schedule. For each window, prepare individual window card in submittal package including: window mark number, rough opening size, unit size, type (fixed/operable), NOA or PA number, design pressure, test pressure, and U/SHGC values. Lead time: 10-16 weeks.

08 71 00 Door Hardware Schedule

Location	Hardware Type	Manufacturer / Series	Finish	Function
Entry door D-01	Multi-point impact hardware	Assa Abloy / Hoppe impact series	Matte black	Keyed entry, 3-point lock
All interior passage doors	Cylindrical knob or lever set	Schlage B-series	US32D (Satin Stainless)	Passage (no locking)
All bedroom doors	Lever privacy lockset	Schlage B-series	US32D or Matte Black	Privacy (inside push-button)
All bathroom doors	Lever privacy lockset	Schlage B-series	Matte Black	Privacy
Mechanical/utility room	Lever keyed entry	Schlage B-series commercial duty	US32D	Keyed

Location	Hardware Type	Manufacturer / Series	Finish	Function
Workshop entry (interior)	Commercial duty lever lockset	Corbin Russwin or Assa Abloy	US32D	Keyed entry
Closet doors	Bifold hardware or dummy pull	Stanley or equal	Matte Black	N/A locking
All exterior hardware	Marine grade specified with each door	Per opening specification	Marine stainless internal	Per door type

Provide complete hardware schedule as a submittal, coordinated with door schedule, for Architect review prior to ordering. All hardware must be submitted as a single, coordinated hardware package by a door hardware consultant or supplier.

08 80 00 Glazing

All field-glazed conditions (curtain wall, storefront, fixed windows where field glazing is required): use Dow 995 silicone structural sealant or AAMA 714 compliant silicone glazing compound. Maintain minimum glass edge clearance per glass manufacturer's requirements (typically 1/4" edge bite minimum). Install setting blocks (neoprene 70-durometer) at all fixed glazing bottom bearing points, 1/8 of glass width from corners. Do not use wood or plastic setting blocks. Side blocks at all operable glazing. All glazing: verify compatibility of sealants with glass coating, frame finish, and waterproofing sealants — submit compatibility statement from sealant manufacturer.

Section 10 — Division 09 Finishes

09 21 00 Gypsum Wallboard (GWB)

Location / Application	GWB Type	Thickness	Finish Level	Notes
All standard wall and ceiling applications	Type X (fire-rated)	5/8"	Level 4	GA-216 installation standard

Location / Application	GWB Type	Thickness	Finish Level	Notes
All surfaces receiving eggshell or semi-gloss paint	Type X	5/8″	Level 5 (skim coat)	Required for smooth reflective finishes
Bathrooms — within 4′-0″ of shower/tub	Moisture-resistant (MR) / green board	5/8″	Level 3 (behind tile)	Not a tile backer; use cement board at tile-direct
Shower walls, tub surrounds, kitchen backsplash (tile-direct)	Cement board (Durock, HardieBacker)	1/2″	N/A — tile direct	Lap seams with alkaline-resistant mesh tape + thinset; no drywall compound on cement board
Exterior soffit (if GWB)	Exterior gypsum soffit board	5/8″	Level 4	Exterior rated only; or use fiber cement board

Install all GWB per GA-216 Recommended Levels of Gypsum Board Finish. All corners: metal corner bead, clinched or screwed at 9″ o.c. maximum. All control joints at GWB: 093 series zinc control joint at maximum 30′-0″ spacing and at all structural joints. Allow all GWB tape and compound to dry fully between coats. Final sanding: 120-grit minimum, wipe clean before painting.

09 30 00 Tiling

Location	Tile Type / Size	Grout Joint	Adhesive	Membrane / Notes
Living areas, entry, hallways (floor)	24″×24″ rectified porcelain, cream/ivory	1/16″ unsanded	Laticrete 254 Platinum	Schluter DITRA uncoupling membrane over wood framing
Bathroom walls (to 8′-0″ AFF)	12″×24″ rectified porcelain, spa blue-gray	1/8″ sanded	Laticrete Multimax Lite	Mapei Ultracolor sanded grout; seal with impregnating sealer
Kitchen backsplash	4″×12″ white gloss subway tile	1/16″ unsanded	Laticrete 254 Platinum	Mapei white unsanded grout; seal grout
Shower floors	2″×2″ mosaic non-slip porcelain	1/8″ sanded	Laticrete 254 Platinum	Slope to drain 1/4″/ft minimum; waterproof membrane required
Shower walls (to ceiling or 8′ AFF)	Match bathroom wall tile specification	1/8″	Laticrete Multimax Lite	On cement board backer; seal all grout

All tile installations: back-butter tile in addition to trowel-applied adhesive to achieve minimum 95% coverage on wet areas and 85% coverage on dry areas per TCNA Handbook. All grout: seal with penetrating impregnating sealer (Laticrete Grout Boost or Mapei Keranet) within 21 days of installation. All shower pans: pre-tile flood test for minimum 24 hours before tile installation to verify waterproof membrane integrity.

09 64 00 Wood Flooring

Engineered white oak hardwood: 6" wide plank, wire-brushed matte UV finish, minimum 3/4" wear layer, 5/8" or 3/4" total thickness. At all bedroom and closet floors. Installation: click-lock floating or full-spread glue-down per manufacturer recommendation (glue-down preferred in tropical climate for dimensional stability). Adhesive: Bostik Best or Sika-T21 urethane adhesive. Acclimate flooring on-site minimum 72 hours before installation. Do not install until all wet trades (concrete, tile, painting) are complete and building is fully dried and conditioned. Schluter RENO-T or RENO-TK transition strips at all tile-to-wood transitions. Schluter RENO-V at all exposed wood floor edges at transitions.

09 90 00 Paints and Coatings

Interior Paint System

Surface	Product	Sheen	Coats	Color / Notes
Interior walls (standard)	Benjamin Moore Aura Interior	Eggshell	1 primer + 2 finish	White OC-17 as base; Newburyport Blue HC-157 at accent walls
Ceilings	Benjamin Moore Aura Matte	Flat/Matte	1 primer + 2 finish	White OC-17 throughout
Interior trim, doors, casings	Benjamin Moore Aura Semi-Gloss	Semi-Gloss	1 primer + 2 finish	White OC-17 or bright white trim; sand between coats
Accent walls (great room, primary suite)	Benjamin Moore Aura Interior	Eggshell	1 primer + 2 finish	HC-157 Newburyport Blue
Bathroom ceilings	Benjamin Moore Aura Bath & Spa	Matte (moisture-resistant)	1 primer + 2 finish	White OC-17

Exterior and Specialty Coatings

- **Exposed structural steel and metal fabrications:** 2 coats Sherwin-Williams DTM Acrylic Primer-Finish (or zinc-rich primer first per 05 12 00 specifications) + 2 coats SW Emerald Urethane Trim Enamel in charcoal gray or per schedule.
- **Workshop floor:** 3-coat epoxy system. Surface preparation: mechanical grinding to ICRI CSP 3 profile. Coat 1: 100% solids epoxy base coat (Sherwin-Williams Tile-Clad or Sika Sikafloor 156); Coat 2: decorative color flake broadcast to full coverage; Coat 3: clear polyurethane or polyaspartic top coat with non-slip aggregate broadcast. Total DFT minimum 20 mils. Apply only in controlled humidity conditions (RH below 85%); do not apply if concrete moisture exceeds 5 lb/1,000 SF/24hr calcium chloride test.
- **Exposed concrete piers:** Penetrating silane-siloxane water repellent (Prosoco Sure Klean Weather Seal Silane-Siloxane, or Seal-Krete Original). Apply 2 coats, wet-on-wet application, by roller or airless spray. Do not apply in direct sunlight or on hot concrete. Reapply every 5-7 years per maintenance schedule.

Section 11 — Division 10 Specialties

10 14 00 Signage

House number signage: stainless steel laser-cut numerals, minimum 6” height, backlit LED warm white 3000K, mounted at entry gate or entry wall at eye level and visible from street. Signage procurement is Owner’s responsibility. Contractor to provide: (a) 120V/20A dedicated weatherproof outlet at signage mounting location for LED driver, and (b) mounting anchor bolts as directed by Owner’s sign vendor.

10 28 00 Toilet Accessories

All bathrooms: Kohler Purist series or Moen Arris series — matte black finish throughout. Provide and install:

- Toilet paper holder: recessed preferred (wall-thickness permitting) or surface-mount

- Towel bar: 24” in full bath; 18” in powder room
- Hand towel ring: adjacent to each vanity sink
- Robe hooks: 2 per full bath, 1 per powder room, on back of door or adjacent wall
- Primary bath: heated towel rack — electric, 240V/20A dedicated circuit (coordinate with electrical), matte black finish
- All accessories: blocking required behind GWB at install locations — provide 2×6 horizontal blocking at accessory mounting heights during framing

10 44 00 Fire Protection Specialties

Provide and mount portable fire extinguishers at the following locations:

- Workshop: 5-lb ABC dry chemical (minimum Class BC for vehicle and flammable storage environments), wall-mounted in bracket at each workshop entrance
- Kitchen: 2.5-lb ABC dry chemical, wall-mounted accessible near exit (not adjacent to range)
- Each floor stair landing: 2.5-lb ABC dry chemical
- All extinguishers: annually inspected; maintain inspection tags

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Section 12 — Division 11 Equipment

11 31 00 Appliances (Owner-Furnished, Contractor-Installed — OFCI)

Appliance	Location	Electrical Rough-In	Plumbing Rough-In	Gas Rough-In
Range / Cooktop	Kitchen	240V / 50A dedicated circuit, NEMA 14-50R or per appliance	None (electric) or 1/2” gas if gas range	1/2” gas with shutoff if gas range
Refrigerator	Kitchen	120V / 20A dedicated circuit, NEMA 5-20R	1/4” ice maker supply line with valve	None
Dishwasher	Kitchen	120V / 20A dedicated circuit, NEMA 5-20R	3/8” hot supply; 1-1/2” drain to disposal or standpipe	None

Appliance	Location	Electrical Rough-In	Plumbing Rough-In	Gas Rough-In
Microwave / Over-range	Kitchen	120V / 20A dedicated circuit	None	None
Garbage Disposal	Kitchen sink	120V / 20A switched circuit, GFCI	1-1/2" drain connection	None
Clothes Dryer	Laundry room	240V / 30A dedicated circuit, NEMA 14-30R	1-1/2" exhaust duct to exterior (min. 4" dia metal duct)	None (electric) or 1/2" gas if gas dryer
Clothes Washer	Laundry room	120V / 20A dedicated circuit, GFCI, NEMA 5-20R	1" cold supply; 1-1/2" standpipe drain	None
Outdoor Grill	Outdoor kitchen	120V / 20A GFCI weatherproof outlet nearby	None	3/4" propane or natural gas with shutoff valve at grill location
Outdoor Refrigerator	Outdoor kitchen	120V / 20A GFCI dedicated circuit, weatherproof	None	None

11 12 00 Vehicle Lift — Workshop

⚠ SPECIAL INSPECTION REQUIRED — ANCHOR BOLTS

Anchor bolt installation for the vehicle lift posts is a special inspection item. Continuous inspection required during anchor bolt drilling and setting. Do not install anchor bolts without the Special Inspector present. Coordinate anchor bolt sizes and embedment depths with EOR review of BendPak installation manual prior to concrete slab pour.

Workshop hydraulic vehicle lift: BendPak XPR-10S two-post asymmetric lift, 10,000 lb rated capacity. This is an Owner-furnished, contractor-installed item. Contractor is responsible for:

- Confirming anchor bolt size, quantity (4 per post), embedment depth, and concrete strength requirements per BendPak Installation Manual with EOR
- Setting anchor bolt sleeves (Schedule 80 steel pipe sleeve) in workshop slab concrete prior to pour — coordinate timing with concrete work

- Providing dedicated electrical circuit: 240V/60A single-phase (confirm with BendPak XPR-10S specifications for exact electrical requirement)
- Final installation of lift by BendPak-authorized installer; provide installation certificate at closeout
- Post-installation inspection and certification per BendPak requirements

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Section 13 — Division 12 Furnishings

12 24 00 Window Treatments

Provide and install: Hunter Douglas Architella Alexa motorized roller shades, or Lutron Serena motorized roller shades, throughout all conditioned interior spaces. Operating system: Lutron Caséta Pro RadioRA 3 hub for smart home integration (Alexa, Google, Apple HomeKit). Shade specifications by room:

- All bedrooms: blackout room-darkening fabric (5% openness or less). Color: soft white or linen on room side, reflective white on window side for heat rejection.
- Great room, dining, kitchen: light-filtering fabric, 10% openness, solar screen, neutral tone.
- Primary suite: blackout in sleeping areas; light filtering at sitting area / bathroom if applicable.
- App control: Lutron or Hunter Douglas app on iOS and Android. Program sunrise/sunset automation and occupancy scenes.
- Power: low-voltage wiring rough-in at each window head location — 24VAC or 120V per manufacturer selection. Coordinate with Electrical.
- Procurement: Owner-furnished if desired, or Contractor to provide pricing through specialty shade dealer. Confirm procurement responsibility at contract execution.

12 35 00 Residential Casework

All casework specifications are covered under Division 06, Section 06 41 00 Architectural Wood Casework. Refer to that section for complete requirements.

Section 14 — Division 13 Special Construction

13 15 00 Hot Tubs and Spas

General — Both Hot Tubs

Provide and install 2 total hot tubs (1 under-house terrace level, 1 rooftop), each to be 6-person minimum saltwater spa. Recommended models: Bullfrog Spas A9L series, Caldera Utopia Tahitian, or approved equivalent. All hot tub installation per manufacturer requirements and NEC Article 680. Submit shop drawings and product data for Architect review.

Hot Tub 1 — Under-House Terrace Level

- Location: mounted on structural Trex composite deck platform at ground-level terrace under raised house footprint; no additional structural slab required at ground level (confirm final location and loading with EOR — if located on grade, slab may be needed)
- Equipment: equipment closet or screen enclosure adjacent to hot tub, minimum 36” access clearance on all sides of equipment
- Plumbing: 2” supply and return lines; floor drain with trap and sanitary tie-in; accessible cleanout
- Electrical: 240V/60A GFCI-protected disconnect within 5’-0” of spa but not closer than 5’-0” from spa edge; no overhead electrical within 10’-0” of spa water edge per NEC 680.22(B)
- Bonding: bond wire connecting all metal components of spa (equipment, shell hardware, adjacent metal fencing) per NEC 680.26
- Water supply: dedicated 3/4” cold water supply with shutoff and backflow preventer (ASSE 1019)

Hot Tub 2 — Rooftop

- Location: on thickened structural slab per Division 03 specifications (12” thick, (2) mats #5 at 9” o.c. each way). EOR to confirm slab design for 120 PSF live load zone plus hot tub dead load (water-filled spa weight approximately 8,000–12,000 lb; confirm with EOR).

- Equipment: mechanical screen enclosure on rooftop adjacent to spa — steel tube frame, louvered aluminum screen panels, powder coat charcoal gray, removable for service
- Plumbing: same as under-house unit; floor drain at rooftop slab with direct trap and drain to rooftop drain system; confirm drain capacity with MEP engineer
- Electrical: same NEC 680 requirements as above; rooftop sub-panel serves this circuit
- Bonding: full NEC 680.26 bonding grid including rooftop structural steel members within 5’-0” of spa, and all metal equipment, fittings, and shell hardware

13 90 00 Special Instrumentation — Entry Neon L-Accent Lighting System

System Description

Entry L-accent neon lighting system at main entry, forming a vertical and horizontal L-shape architectural accent. Total: 18 LF (6’-0” vertical run + 12’-0” horizontal run). System specifications:

Component	Specification	Manufacturer / Model
LED Neon Flex	RGB, 24VDC, IP67, 12W/m, silicone housing, 16” minimum bend radius	Signcomplex or BTF-Lighting or approved equal
Aluminum Extrusion Channel	Surface-mount aluminum channel, opal PC diffuser cover for smooth neon glow effect	Muzata or Klus or approved equal
Mounting Fasteners	Type 316 stainless steel screws at 12” o.c. maximum into structural backing	Per wall substrate
LED Driver (per leg)	Mean Well HLG-150H-24A waterproof 24VDC 150W constant voltage driver, IP65	Mean Well (direct or authorized distributor)
Driver Enclosure	NEMA 3R weatherproof enclosure, powder coat charcoal gray, padlocked	Hoffman or equal
DMX Controller	Ltech EN-LED-DMX512 controller with Ltech LT-932 WiFi bridge for app control	Ltech (verified supplier)
Wiring	All 24VDC wiring in liquid-tight flexible metal conduit (LFMC); wire gauge per ampacity; all in LFMC even at interior portions in exposed wall condition	Per NEC low-voltage requirements

Programmed Light Modes

- Mode 1 — Slow Color Cycle (DEFAULT): gradual slow RGB fade cycle, 60-second full cycle, low brightness
- Mode 2 — Static Orange (tropical warm accent)
- Mode 3 — Static Teal (cool coastal accent)
- Mode 4 — Static Warm White (3000K equivalent)
- Mode 5 — Party Chase (RGB alternating chase at medium speed)
- Mode 6 — Holiday Presets (Red/Green for winter holidays; Red/White/Blue for patriotic; Orange/Purple for Halloween)
- All modes: controllable via WiFi app; dimmable 0–100%; schedule programmable (auto-on at sunset, auto-off at 11pm per default schedule)

Programming guide must be delivered to Owner as part of closeout documents — provide printed guide in O&M binder plus digital PDF. Include: WiFi network pairing instructions, app download links, step-by-step mode programming, and factory reset procedure.

Section 15 — Division 14 Conveying Equipment

No elevator or conveying equipment is included in the current construction scope. Note for future planning: the stair tower has been conceptually located and sized to accommodate a future elevator installation if the Owner elects to add one in a future phase. At current construction, provide the following future-proofing items:

- Structural blocking in stair tower walls at elevator rail attachment heights per EOR direction — provide 2-layer 3/4” plywood blocking at rail attachment zone, floor-to-floor, in all four walls of elevator shaft cavity
- Notify EOR of future elevator intent so that structural capacity at shaft walls can be considered in current design

- Provide one 40A, 240V electrical conduit stub-out from main panel to elevator shaft location, with pull string, for future elevator power
- Any elevator addition in the future will require new permit, licensed elevator contractor, and licensed engineer review of structural adequacy

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Section 16 — Division 21 Fire Suppression

21 13 00 Wet-Pipe Sprinkler Systems

ℹ SPRINKLER SYSTEM — VERIFY WITH AHJ

Under FBC for R-3 single-family residential with conditioned area below 5,000 SF, an automatic fire sprinkler system is NOT required. However, local jurisdictions may have adopted amendments requiring sprinklers. Verify with the AHJ at pre-application meeting. Owner may also elect to install a sprinkler system voluntarily for additional insurance premium reduction.

If an automatic fire sprinkler system is required by AHJ or elected by Owner, provide the following:

- System design: NFPA 13D (residential sprinkler systems) — light hazard classification
- Sprinkler heads: residential concealed or semi-recessed type, quick-response, 135°F temperature rating at living areas; 155°F at attic spaces
- Water supply: size domestic water service to accommodate both domestic demand and sprinkler demand simultaneously (combined demand analysis per NFPA 13D Section 7)
- Inspections: flush test, hydrostatic test at 200 psi for 2 hours, and final flow test prior to concealing
- Designer: licensed fire protection engineer or NICET Level III minimum
- Exempt areas per NFPA 13D: bathrooms under 55 SF, closets under 24 SF (confirm current edition)

Section 17 — Division 22 Plumbing

22 00 00 Plumbing — General

All plumbing work to be performed by a licensed master plumber (Florida CFC license required). All work per FBC Plumbing Volume / IPC 2021. Required inspections: rough-in (before walls are closed), top-out (stack, vent, and drain above slab), pressure test, and final. All drain and waste lines to be pressure-tested and inspected prior to concealing.

22 10 00 Plumbing Piping Systems

Domestic Water Supply

Location / Run	Pipe Material	Size	Notes
Main from meter to mechanical room	PEX-A (Uponor Wirsbo AquaPEX or equal)	1-1/2″	Underground in 2″ PVC sleeve; with main shutoff valve at entry
Trunk lines per floor (hot and cold)	PEX-A	1″	Run in ceiling/floor cavity with access fittings at every change in direction
Branch mains to fixture groups	PEX-A	3/4″	Homerun or trunk-and-branch system per MEP design
Fixture supplies	PEX-A	1/2″	All lavatory, shower, toilet, hose bib, appliance supplies
Pressure regulating valve (PRV)	Watts 25AUB or equal	1-1/2″ inlet	Set 60 PSI; locate at main entry in mechanical room; install upstream of water softener
Water meter and main shutoff	Ball valve, full-port, lockable	Per utility	Mounted at grade level, east pier face; accessible without tools

No galvanized steel piping anywhere in the system. All PEX-A fittings: Uponor ProPEX or equal proprietary expansion system (not compression or crimp at PEX-A). Insulate all hot water supply lines: 3/4″ closed-cell pipe insulation (Armaflex) at all accessible runs.

Drain, Waste, and Vent (DWV)

- All DWV: PVC Schedule 40, white, ASTM D2665 / D3034. No ABS in Florida coastal construction (susceptible to UV degradation at exposed conditions).
- Main stack: 4" diameter. Secondary stacks: 3". Vent pipes: 2" minimum. Extend all vents minimum 6" above finished roof, minimum 10' from HVAC air intakes.
- Horizontal drainage slope: 1/4" per foot minimum for 2" and 3" pipes; 1/8" per foot for 4" pipe. Verify with MEP engineer for specific conditions.
- Cleanouts: at base of each vertical stack, at each change of horizontal direction exceeding 90°, and at maximum 50' intervals in horizontal runs. All cleanouts: plug type, accessible without removing finish material.

22 30 00 Plumbing Equipment

Water Heating

Tankless water heater (primary): Rinnai RU199iN, 199,000 BTU/hr input, natural gas, condensing, direct vent through exterior wall. First-hour rating: verify with MEP for household demand. Or, if natural gas is unavailable: heat pump water heater — Rheem ProTerra 80-gallon, 240V/30A, Energy Star rated. Locate in Level 1 mechanical room, elevated minimum 12" above BFE on mechanical equipment platform. Minimum 24" clearance on all sides for annual service. Provide dedicated gas line from gas meter to water heater with manual shutoff valve and union. Expansion tank: Watts PLT-12 or equal, sized per PRV setting and supply volume.

Water Treatment

Water softener: EcoWater ERR3700R or Kinetico Premier Series, 48,000-grain capacity minimum, automatic regeneration, brine tank with overflow drain connected to sanitary drain. Locate in mechanical room adjacent to water heater. Provide: 3/4" bypass valve, drain connection, 120V/20A outlet. Configure bypass for hot tub fill lines if Owner prefers unsoftened water for spa fill.

22 40 00 Plumbing Fixtures

Fixture Type	Manufacturer / Model	Finish	Notes
Water closets (toilets) — all baths	Kohler Cimarron Comfort Height, 1.28 GPF, elongated bowl	White	ADA height; slow-close seat; confirm rough-in 12″
Lavatory sinks — all baths	Kohler Verticyl or Caxton undermount rectangular	White	Undermount; size per vanity cutout
Lavatory faucets — standard baths	Kohler Purist single-hole or widespread	Matte Black	1.2 GPM aerator; ADA lever handles
Lavatory faucets — primary suite	Kohler Artifacts wall-mount or deck-mount	Matte Black	High-arc spout; hot/cold levers
Primary suite soaking tub	Kohler Underscore or Kathryn freestanding soaking tub, 60″ or 72″	White / Matte	Freestanding; floor-mount filler faucet in matte black
Shower system — primary suite	Kohler DTV+ Prompt Digital Shower System	Matte Black trim	Thermostatic; volume control; body sprays and rain head; requires DTV interface unit in wall
Shower system — secondary baths	Kohler Bancroft or Purist pressure-balance shower valve with trim	Matte Black	Pressure-balance per IPC / FBC; volume control
Kitchen sink	Kohler Whitehaven or Stages undermount, single basin	White or Stainless	33″ or 36″ per cabinet layout; workstation ledge preferred
Kitchen faucet	Kohler Artifacts or Tourniquet pull-down	Matte Black	1.5 GPM; pull-down spray; include soap dispenser
Bar sink (under-house bar)	Kohler Undermount Bar Sink, 9″×9″ minimum	Stainless	Below bar height at 42″ bar surface; cold water only or hot/cold per Owner
Hose bibs	Woodford Model 14 or equal, frost-free not required (FL climate) but anti-siphon required	Chrome	Minimum 2: one at front entry area, one at rear deck; both with ASSE 1011 anti-siphon vacuum breaker
Shower drains — primary suite	Schluter KERDI-LINE linear drain, matte black grate	Matte Black	Single-slope shower floor to linear drain at one wall
Shower drains — secondary baths	Sioux Chief center drain, square tile grate	Matte Black	Four-slope shower floor to center drain

Section 18 — Division 23 HVAC

23 00 00 HVAC — General

All HVAC work to be performed by a licensed mechanical contractor (Florida CMC license required). All work per FBC Mechanical Volume / IMC 2021. Required inspections: rough-in ductwork before concealing, refrigerant pressure test, and final. Submit Manual J load calculations for each zone, Manual S equipment selection, and Manual D duct design prior to installation. All equipment to be elevated minimum 12” above BFE on aluminum or galvanized steel platforms.

23 09 00 Controls and Instrumentation

Thermostat at each zone: Ecobee SmartThermostat Premium (EB-STATE6-01). Features: occupancy sensing, remote sensors for multi-room averaging, voice control (Alexa built-in), app control (iOS and Android), smart home integration (Apple HomeKit, Google Home). 24V low-voltage control wiring from each air handler/mini-split control board to thermostat. Install at 48” AFF on interior wall. Program each zone with Owner’s preferred schedule at startup.

23 82 00 HVAC System — Mitsubishi Hyper Heat Multi-Zone

System Configuration

Zone	Area Served	Indoor Unit Model	Capacity	Unit Type
Zone 1	Great Room / Kitchen / Dining	Mitsubishi SVZ-KP48NA (ducted) or SVZKP48NA ceiling cassette	4-ton (48,000 BTU)	Ceiling cassette or slim duct
Zone 2	Master Suite (bedroom + bath)	Mitsubishi MSZ-FS24NA	2-ton (24,000 BTU)	Wall-mount ductless
Zone 3	Guest Suite	Mitsubishi MSZ-FS12NA	1-ton (12,000 BTU)	Wall-mount ductless
Zone 4	Primary Suite (alternate location / owner’s choice)	Mitsubishi MSZ-GL24NA	2-ton (24,000 BTU)	Wall-mount ductless

Zone	Area Served	Indoor Unit Model	Capacity	Unit Type
Zone 5	Bedrooms 3 & 4	Mitsubishi MSZ-FS18NA	1.5-ton (18,000 BTU)	Wall-mount ductless
Zone 6	Rooftop / Outdoor Covered Area	Mitsubishi MSZ-EF12NA or MXZ outdoor compatible	1-ton (12,000 BTU)	Weatherproof ductless

Outdoor Units

Provide one or more Mitsubishi MXZ-series multi-zone outdoor unit(s) to serve all indoor units, sized to match combined indoor unit capacity. Hyper Heat series (MXZ-4C36NAHZ or similar) rated to 100% capacity at 5°F outdoor ambient — not required in Florida climate but provides reliability and efficiency in northern Gulf Coast applications. Alternatively, separate outdoor units per zone may be used if MEP engineer determines this provides better zoning flexibility and service access. All outdoor units: mounted on aluminum or galvanized steel equipment platforms elevated minimum 12” above BFE; vibration isolation pads under all unit feet. Refrigerant line insulation: 3/4” Armaflex closed-cell foam, UV-resistant jacketed at all exposed exterior runs.

Energy Recovery Ventilator (ERV)

Panasonic WhisperComfort ERV (FV-04VE1) or equivalent residential ERV unit, 150 CFM total balanced ventilation. Install in mechanical room or attic space; duct to common return air plenum or per MEP design to provide whole-home fresh air per ASHRAE 62.2. ERV provides both supply fresh air and exhaust in balanced format, recovering heat and humidity for energy efficiency. Controlled via Ecobee or dedicated wall control with on/off/auto setting.

Section 19 — Division 26 Electrical

26 00 00 Electrical — General

All electrical work per NEC 2023 / FBC Electrical Volume. Licensed electrical contractor (Florida EC license) required. All conductors: copper, no aluminum. All outdoor, garage/workshop, bathroom, kitchen, hot tub, rooftop, and exterior circuits: GFCI protected per NEC. AFCI breakers at all bedroom and common living area branch circuits per NEC 210.12. All electrical boxes and conduit in coastal

exposure: Schedule 40 PVC or Type 316 stainless steel enclosures — no galvanized steel in salt air conditions.

26 24 00 Electrical Service and Distribution

Component	Specification	Notes
Service entry	400A, 240V, single-phase, 2-wire + ground, underground from utility transformer	Coordinate point of connection with utility company at permit pre-application
Underground service conduit	4” PVC Schedule 40 from utility transformer to meter base at grade; east pier face	Minimum 24” burial depth; concrete-encased duct bank if under driveway
Main panelboard	Square D QO 400A MLO, 54-circuit minimum, ANSI/NEMA 3R enclosure	Located in L1 mechanical room above BFE; surge protection device required
Whole-service SPD	Eaton CHSPT2ULTRA Type 1 SPD or Square D SDSA1175C	Install at main panel; protect all circuits from utility surges and lightning transients
Workshop sub-panel	Square D QO 200A, 30-circuit, flush-mount in workshop wall	Fed from main panel via 4/0 AWG copper in 2” conduit
Rooftop sub-panel	Square D QO 100A, 20-circuit, NEMA 3R weatherproof	Located at rooftop mechanical zone; serves rooftop HVAC, hot tub, lighting, outlets

26 28 00 Overcurrent Protective Devices

- **AFCI breakers:** All bedroom circuits, living areas, dining, hallways per NEC 210.12. Use Square D QO CAFCI or Eaton AFCI dual-function breakers.
- **GFCI protection:** All outdoor circuits, garage/workshop circuits, all bathroom circuits, all kitchen countertop circuits (within 6’ of sink), all hot tub and spa circuits, all rooftop circuits, all within-reach-of-water exterior circuits. Use GFCI breakers (preferred over GFCI receptacles for comprehensive protection).
- **AFCI/GFCI dual-function breakers:** At circuits requiring both protections (bedroom circuits near bathrooms, etc.): use dual-function AFCI/GFCI combination breakers.

26 51 00 Interior Lighting

Area	Fixture Type	Color Temp	CRI	Control
Kitchen — general	Recessed LED 6” wafer (Halo RL56 or Envision LED)	3000K	90+	Lutron Caséta Pro smart dimmer
Kitchen — under-cabinet	LED tape strip 3000K, dimmable, 24VDC low-voltage in aluminum channel	3000K	90+	Smart dimmer or dedicated Lutron switch
Living / Dining areas	Recessed LED 6” throughout; OFCI statement pendant at dining	3000K	90+	Lutron Caséta Pro smart dimmer
All bedrooms	Recessed LED 6” + bedside reading sconces (OFCI)	3000K	90+	Smart dimmer at door; bedside outlet for plug-in sconces
Bathrooms — vanity	LED vanity bar strip light above mirror	3000K (bath) / 5000K (grooming)	90+	Standard dimmer switch
Bathrooms — backlit mirror	LED backlit mirror (OFCI)	5000K (grooming zone)	90+	Integrated switch or dimmer per mirror
Workshop — general	Industrial LED shop lights, 10,000 lm, 5000K, suspended or surface-mount, IP44	5000K	80+	Standard switch; 4 fixtures minimum on dedicated circuit
Under-house lounge	IP44-rated recessed LED linear strips, warm white, dimmable	2700K–3000K	90+	Smart dimmer, Lutron Caséta Pro

26 56 00 Exterior Lighting

- **Pier accent lights:** LED surface-mount weatherproof sconce at each concrete pier, 12W, 3000K, IP65 rated, dark-sky compliant (fully shielded, downward directed). Stainless steel housing or powder-coat black.
- **Path and landscape lighting:** Low-voltage 12V LED path lights along crushed shell walkways and at landscape bed perimeters; controlled by Hunter ROAM WiFi timer with photocell. Transformer: 150W minimum, digital timer, mounted at house.
- **Rooftop pergola string lights:** IP65-rated outdoor Edison-style LED bulb string lights (warm white 2700K), 48’ runs, commercial-grade cord (Enbrighten or Classy Caps or equal), on smart outlet switch with sunrise/sunset schedule via Lutron Caséta or equivalent.

- **Exterior step lighting:** LED step lights integrated into stair risers or newel posts, 3000K, IP65, stainless housing.
- **Rooftop area general:** LED bollards or low-profile recessed deck lights at rooftop terrace perimeter, coordinated with Trex decking substructure.

26 27 00 Specialty Electrical Systems

Standby Generator

Generac Guardian Series 22kW air-cooled standby generator (Generac 7043 or equal), propane or natural gas fuel, automatic transfer switch (ATS) — transfer within 5 seconds of outage. Generator pad: 4" thick concrete slab, 3,500 psi, with 3'-0" minimum clearance on all four sides. ATS location: adjacent to main panel in mechanical room. Circuits included in generator coverage (Owner to confirm final list):

- Zone 1 HVAC (great room) and Zone 2 (primary suite) minimum; full HVAC preferred
- All refrigerators (kitchen and outdoor)
- Lighting and outlets — Level 1 and entry
- Tankless water heater (if gas — verify ignition circuit)
- Hot tub circulation pumps (to prevent freeze/stagnation)
- Security system and cameras
- Sump pump or utility pump if applicable

EV Charging

Electric vehicle charging: provide 50A, 240V dedicated circuit from workshop sub-panel to NEMA 14-50 receptacle in workshop (or hard-wired Level 2 EVSE conduit stub-out as alternative). Conduit only at this location — Owner selects and installs EVSE charger unit. Conduit: 3/4" minimum EMT or PVC from panel to outlet location; pull string left in conduit.

Solar-Ready Infrastructure

Install solar-ready conduit infrastructure for future PV array up to 10 kW DC. Provide: one 1" EMT conduit from main panel mechanical room to rooftop, pull string installed; one 3/4" EMT conduit (spare) on same route; 40A 240V breaker position reserved in main panel and labeled "FUTURE SOLAR."

Conduit route: from panel area, up wall cavity, through roof penetration with pre-installed weatherproof conduit seal. Note location in as-built drawings.

Low-Voltage and Structured Wiring

- **Data:** Cat6A (augmented Category 6, 10Gb capable) data cable to all rooms, terminated at wall plates and at structured media center (SMC) in Level 1 mechanical room. Minimum: 2 drops per bedroom, 4 drops at great room, 2 drops at each home office/workspace, 1 drop at rooftop. SMC: 24-port Cat6A patch panel, 1U switch shelf, cable management.
- **HDMI rough-in:** 2 runs HDMI conduit (1" EMT with pull string) at great room to ceiling/wall mount location; 1 run HDMI conduit at primary suite to TV wall location.
- **Security:** Ring Pro video doorbell wiring (16V AC transformer at door) at entry; 4 exterior security cameras on dedicated Cat6A runs to NVR location in SMC; security panel at master suite with cellular backup module (4G LTE).
- **Whole-home audio:** Sonos in-ceiling or in-wall speaker rough-in at great room (2 pairs), primary suite (1 pair), rooftop (1 pair, IP66 weatherproof speakers). Cat6A or speaker wire per Sonos system requirements to amplifier location in SMC.

Section 20 — Division 31 Earthwork

31 10 00 Site Clearing

Remove and grub all vegetation within construction limits as shown on the site plan. Protect all trees and vegetation outside construction limits with high-visibility orange fencing at drip line. No heavy equipment within the drip line of any preserved tree — no exception. Stockpile or haul topsoil per Owner direction. Remove all roots and organic material to minimum 12" depth below any building or paving footprint. Confirm clearing limits with Architect before mobilizing equipment.

31 20 00 Earth Moving

Excavate for drilled pier locations, grade beams, underground utilities (water, sewer, electrical, gas, irrigation), and any required site regrading. Soil classification to be confirmed by geotechnical engineer

on site during excavation. Stockpile excavated material for reuse as fill if approved by geotechnical engineer; otherwise haul off site.

Import fill material (if required): clean, washed, non-expansive silica sand or crushed shell per geotechnical engineer approval. No recycled concrete, organic material, debris, or clay fill. All fill: compact in 6" maximum lifts to 95% Modified Proctor Density per ASTM D1557. Compaction testing at minimum 1 test per 2,000 SF per lift; more frequently as directed by geotechnical engineer. Geotechnical engineer to oversee all fill and compaction operations.

31 63 00 Drilled Concrete Piers (Caissons)

Contractor to engage a qualified drilled pier specialty contractor. Submit the following for Architect and EOR review prior to drilling:

- Contractor qualifications and list of comparable projects (minimum 3 projects of similar scope)
- Equipment list and proposed drilling method (dry, cased, or wet rotary)
- Drilling methodology for anticipated soil conditions per geotechnical report
- Concrete mix design (per Division 03 specifications)
- Rebar cage fabrication and delivery schedule

Pier Drilling Requirements

- Minimum auger diameter: 12"; use 18" diameter if shaft enlargement (bell) is required per EOR
- Minimum pier embedment: 10'-0" below grade into bearing stratum per geotechnical recommendation; EOR to specify final embedment per pier load and bearing values
- Casing: install temporary or permanent casing if unstable or flowing soils are encountered; remove temporary casing incrementally during concrete placement
- Bottom cleaning: remove all cuttings and debris from bottom of shaft before concrete placement; clean to minimum 2" loose material at base (verify with caliper or camera if required by EOR)
- Concrete placement: tremie pipe method if water is present in shaft; do not free-fall concrete more than 5'-0" in any condition; place concrete continuously without interruption once started

- Rebar cage: pre-assemble full cage on site; lower into wet concrete within 30 minutes of pour start; support cage plumb with centralizers at 10’-0” o.c. maximum
- Special inspection: Special Inspector present continuously during all drilling, cleaning, cage installation, and concrete placement. Log drilling depth, soil classification, groundwater, and concrete volume for each pier. Report to EOR and Architect within 24 hours.

Section 21 — Division 32 Exterior Improvements

32 13 00 Concrete Paving

- **Driveway:** 4” concrete slab, wire mesh (6×6 W2.9×W2.9 WWR or equivalent #3 bars at 18” o.c. each way), broom finish or exposed aggregate finish per Owner selection. Control joints: 8’-0” maximum in each direction, tooled or sawn within 24 hours of placement. Isolation joint at building face and at street/ROW edge (if applicable).
- **Workshop apron:** 6” concrete, matching driveway finish, with 1/2” isolation joint at building face, welded wire reinforcement.
- **Walks and paths (if concrete):** 4” concrete, broom finish, control joints at 6’-0” o.c.

32 31 00 Fences and Gates

If required by Owner or local code, provide perimeter fence and gates as follows: tropical hardwood (Ipe or Teak) horizontal slat fence, 6’-0” height, stainless steel fasteners, post-set in concrete footings at 6’-0” o.c.; or aluminum powder-coat charcoal gray fence system equivalent. Driveway gate: automated swing gate with keypad, remote, and app control — coordinate electrical circuit (120V/20A weatherproof) at gate operator. Confirm fence setbacks and height limits with local zoning code before installation.

32 84 00 Planting Irrigation System

Controller and Mainline

Hunter Pro-HC controller (HC-1200i or equal), 12-station WiFi-enabled with flow sensor, rain sensor (Hunter Mini-Clik or Wireless Click sensor), and Hydrawise cloud control. Dedicated 1” irrigation supply main tapped before PRV with 3/4” sub-main at backflow. Backflow preventer: Febco 825Y reduced pressure zone (RPZ) type at service entry, above grade accessible. Schedule: timer-based sunrise or pre-dawn runs; rain sensor shutoff; Florida-friendly seasonal schedule programming.

Zone Schedule

Zone	Area	Emitter Type	Flow Rate	Pipe Size
Z1	Front yard trees, orange trees, groundcover	Bubblers at tree root zones (4 per tree), micro-spray at groundcover	2 GPH per bubbler; 0.5 GPM per micro-spray	3/4” PVC main; 1/2” laterals
Z2	Rear yard trees, fig trees, landscaping	Bubblers at fig tree root zones (4 per tree), rotary spray at turf or groundcover	2 GPH per bubbler	3/4” PVC main; 1/2” laterals
Z3	Hanging garden planter boxes at building facade	Drip manifold, individual emitters per plant (0.5 GPH each, 6 emitters per box), overflow drain at each box to soffit channel	3 GPH per planter box	1/2” supply; poly drip tubing at emitters
Z4	Rooftop planters (if installed)	Individual drip emitters per plant, dedicated zone	0.5 GPH per emitter	1/2” supply run to rooftop via chase; shut-off and flush at rooftop access point

32 90 00 Planting

Plant List and Specifications

Plant Species / Common Name	Quantity	Size at Install	Placement	Notes
Citrus sinensis (Valencia Orange or Navel Orange)	3	Min. 15-gallon container, full canopy	Front yard / side yard per plan	Fertilize 3×/year with citrus-specific fertilizer; protect root zone with irrigation bubbler ring

Plant Species / Common Name	Quantity	Size at Install	Placement	Notes
Ficus carica (Brown Turkey or Chicago Hardy Fig)	2	Min. 15-gallon container	Rear yard per plan	Annual pruning; protect from salt wind with wind break plantings if needed
Syagrus romanzoffiana (Queen Palm) or Sabal Palm (native)	4 (corners + entry)	Min. 12′ overall height	Property corners and entry flanking	Sabal Palm preferred as Florida native; stake for 2 years minimum post-install
Bougainvillea spectabilis (Bougainvillea)	Per design	Min. 3-gallon	Hanging planters — primary (magenta or orange bloom)	Train to cascade; prune to control growth; high light required
Epipremnum aureum (Golden Pothos)	Per design	Min. 4″ pot	Hanging planters	Shade tolerant; vigorous grower; trim to maintain form
Tradescantia zebrina (Wandering Jew)	Per design	Min. 4″ pot	Hanging planters — trailing accent	Part sun to shade; vigorous; prune for density
Asplenium nidus (Bird’s Nest Fern)	Per design	Min. 6″ pot	Hanging planters — focal accent	Shade preferred; keep moist; avoid direct midday sun
Tillandsia usneoides (Spanish Moss)	As accent, per design	Drape clusters	Hanging planter upper brackets, pergola	Air plant — no planting medium required; mist 2×/week if no rain
Strelitzia reginae (Bird of Paradise)	Per design	Min. 3-gallon	Foundation planting at building perimeter	Full sun; drought-tolerant once established; dramatic accent
Heliconia spp.	Per design	Min. 3-gallon	Foundation planting, shaded zones	Tropical accent; partial shade; keep moist; cold-sensitive — confirm hardiness zone
Codiaeum variegatum (Croton)	Per design	Min. 1-gallon	Foundation planting, entry area	Full sun for best color; drought-tolerant; mass for impact
Russelia equisetiformis (Firecracker Plant)	Per design	Min. 1-gallon	Foundation planting, entry border	Full sun; attracts hummingbirds; cascading form; drought tolerant once established
Cordyline fruticosa (Ti Plant)	Per design	Min. 3-gallon	Foundation accents at entry and piers	Full sun to part shade; dramatic foliage color (red,

Plant Species / Common Name	Quantity	Size at Install	Placement	Notes
				green, or mixed); specimen plant

Mulch and Ground Cover

All planted beds: 3" depth shredded wood mulch or crushed shell mulch. Keep mulch minimum 3" clear of all tree and plant trunks to prevent rot. Install weed barrier fabric (non-woven polypropylene, 3 oz or heavier) below all crushed shell areas. Crushed shell paths and parking areas: crushed oyster shell or crushed limestone (#57 stone or pea gravel equivalent), 4" minimum depth, with aluminum or steel landscape edging at all transitions. Stake all trees: 2-stake method with tree tie at 1/3 and 2/3 height; maintain for 2 years or until established; remove stakes and ties before they cause girdling.

Front Yard Water Feature — Fountain Basin

Precast concrete basin, 8'-0" × 4'-0" × 18" deep minimum. Interior: waterproof crystalline coating + stone mosaic tile finish in blue-gray palette. Recirculating pump: Pondmaster Mag-Drive 12 or Little Giant WGP-90-PW, housed in submerged basket. LED underwater lights: 12V color-changing LED lights (minimum 3 fixtures), tied to low-voltage transformer with remote or app control. Auto-fill valve: float-operated, connected to potable water supply with anti-siphon vacuum breaker. Overflow: drain pipe at 1" below basin rim, connected to on-site infiltration basin or landscaping swale. Coordinate with site drainage plan to prevent concentrated overflow to neighbor's property.

Section 22 — Warranty Summary Table

System / Item	Contractor Warranty	Manufacturer Warranty	Notes
Concrete / Foundation (piers, grade beams, slabs)	10 years — structural defects	N/A (material certifications provided)	Special inspection records to be retained as warranty support documentation
Structural Steel	10 years — structural defects in	Mill certificates retained on file	Coating warranty per paint manufacturer: TNEMEC or

System / Item	Contractor Warranty	Manufacturer Warranty	Notes
	workmanship and materials		Sherwin-Williams — 5 years coating system
CMU Masonry	5 years — structural defects, waterproofing	N/A	Thoroseal coating — 5 years per manufacturer
TPO Membrane Roofing	2 years — labor and workmanship	20 years NDL — manufacturer (Firestone, GAF, or Carlisle)	NDL warranty requires manufacturer-certified installer and inspection; submit warranty application at completion
Standing Seam Metal Roofing	2 years — labor	40 years — panel structural / 30 years — Kynar 500 finish	Confirm wind uplift warranty with manufacturer (160 mph rated required)
PGT WinGuard Windows	1 year — labor and installation	10 years — glass / 5 years — frame / 1 year — hardware	Register products with PGT within 30 days of installation for warranty activation
Entry Door D-01 (Custom Impact)	1 year — installation labor	Per manufacturer — minimum 10 years structural / 5 years finish	Confirm warranty terms with selected manufacturer (CGI, PGT, or Fortress)
Sliding Glass Doors (PGT WinGuard)	1 year — labor	Same as windows above	Register with manufacturer
Workshop Roll-Up Door (Clopay)	1 year — labor	Limited lifetime on door sections / 1 year hardware and operator	LiftMaster operator: 3 years motor, 1 year parts (register at MyQ app)
Mitsubishi Hyper Heat HVAC System	1 year — labor and refrigerant charge	12 years — compressor / 5 years — parts (requires Diamond Contractor registration)	Register with Mitsubishi within 30 days of installation via Diamond Contractor portal
ERV (Panasonic WhisperComfort)	1 year — labor	6 years — fan motor / 5 years — unit	Register at Panasonic
Kohler Plumbing Fixtures	1 year — labor and installation	Lifetime — faucets and showerheads / 1 year — toilets and other fixtures	Kohler Lifetime warranty requires proof of residential purchase
Rinnai Tankless Water Heater	1 year — labor	12 years — heat exchanger / 5 years — parts / 1 year — labor (manufacturer)	Register at Rinnai within 30 days; requires annual professional service for warranty maintenance

System / Item	Contractor Warranty	Manufacturer Warranty	Notes
Main Electrical Service / Panels	2 years — labor / 1 year — panel equipment	1 year — Square D panel hardware	ANSI certified; retain all panel documentation
Generac Generator	1 year — installation labor	5 years — Generac Guardian Series	Register online; requires annual professional service (Generac certified dealer)
Neon / LED Entry Accent System	1 year — labor and installation	5 years — Mean Well driver / 3 years — LED flex (Signcomplex or equal)	Programming guide required as closeout document; retain all DMX controller configuration files
Hot Tub — Under-House (Bullfrog or equal)	1 year — installation labor	5 years — shell structure / 3 years — shell surface / 2 years — equipment / 1 year — plumbing and jets	Register with manufacturer; annual service recommended
Hot Tub — Rooftop (Bullfrog or equal)	1 year — installation labor	Same as above	Coordinate rooftop structural slab warranty with concrete contractor
BendPak XPR-10S Vehicle Lift	1 year — anchor installation labor	5 years — structural / 3 years — hydraulic / 1 year — electrical	BendPak-authorized installation required for warranty; installation certificate required
Trex Transcend Tropics Composite Decking	2 years — installation labor	25 years — fade and stain (limited residential warranty)	Requires installation per Trex current guide; retain installation records; register with Trex
Hunter Irrigation System	2 years — labor and installation	5 years — controller / 3 years — valves and heads	Annual backflow test required by local code; document annually
Plant Material and Landscaping	1 year — plant establishment warranty (replace dead plants at no charge)	N/A	Establishment warranty voided if Owner fails to maintain adequate watering per irrigation schedule
Epoxy Floor Coating (Workshop)	3 years — labor and coating integrity	Varies by manufacturer — typically 5 years on coating system	Warranty voided if surface prep was inadequate; retain ICRI CSP test documentation
Interior Casework and Cabinetry	2 years — labor and materials	1 year — KCMA hardware (Blum: 10 years on undermount slides)	Blum provides 10-year warranty on Tandem Plus

System / Item	Contractor Warranty	Manufacturer Warranty	Notes
			slides when installed per specification

Section 23 — Submittal Schedule

ℹ SUBMITTAL REVIEW TIMELINE

Allow minimum **10 business days** for Architect review of standard submittals. Structural, MEP, and specialty submittals involving EOR review may require 15 business days. Submit early — do not wait until materials are needed on site. Long-lead items must be submitted and approved before ordering.

#	Submittal Item	Division	Type	Required Before	Responsible Party	Status
1	Geotechnical Report	02	Engineering Report	Foundation permit application	Geotech Engineer	Pending
2	Special Inspections Program (SIP)	01	Program Document	Permit application	GC + Special Inspector	Pending
3	Construction Schedule (CPM/Gantt)	01	Schedule	Pre-construction meeting	GC	Pending
4	Concrete Mix Designs — All Classes	03	Product Data + Test Reports	Before any concrete placement	Ready Mix Supplier + GC	Pending
5	Rebar Shop Drawings — All Elements	03	Shop Drawings	Fabrication and pre-pour	Rebar Fabricator	Pending

#	Submittal Item	Division	Type	Required Before	Responsible Party	Status
6	Drilled Pier Contractor Qualifications and Methodology	31	Qualifications + Method Statement	Before drilling begins	Pier Subcontractor	Pending
7	Structural Steel Shop Drawings	05	Shop Drawings (EOR review)	Fabrication	Steel Fabricator	Pending
8	Composite Steel Deck Shop Drawings	05	Shop Drawings	Fabrication and erection	Deck Supplier (Vulcraft)	Pending
9	CMU Shop Drawings / Grout and Mortar Mix	04	Product Data + Mix Design	Before masonry begins	Masonry Subcontractor	Pending
10	Entry Door D-01 Shop Drawings (Custom Impact)	08	Shop Drawings + NOA	Manufacturing / ORDER IMMEDIATELY	Door Manufacturer (CGI/PGT/Fortress)	Pending
11	PGT WinGuard Windows and Sliding Doors — Window Cards	08	Product Data + NOA cards per opening	Ordering and installation	Window Supplier	Pending
12	Curtain Wall Shop Drawings (Kawneer or equal)	08	Shop Drawings + NOA	Fabrication / ORDER AT EXECUTION	Curtain Wall Manufacturer	Pending
13	Workshop Roll-Up Door D-02 — Product Data	08	Product Data + Wind Rating	Ordering	GC / Clopay Rep	Pending
14	Standing Seam Metal Roofing — Product Data and Uplift Rating	07	Product Data + Test Reports	Fabrication	Roofing Subcontractor	Pending
15	TPO Roofing System — Product Data, Warranty Terms, Installer Cert.	07	Product Data + Warranty Application	Installation	Roofing Subcontractor	Pending
16	Mitsubishi Hyper Heat HVAC — Product Data + Manual J/S	23	Product Data + Load Calcs	Equipment ordering	HVAC Subcontractor	Pending

#	Submittal Item	Division	Type	Required Before	Responsible Party	Status
17	Plumbing Fixtures Schedule — All Kohler Items	22	Product Data (cut sheets)	Rough-in	Plumbing Subcontractor	Pending
18	Electrical Panel and Service Schedule	26	Product Data + One-Line Diagram	Permit application + installation	Electrical Subcontractor	Pending
19	Kitchen Cabinetry Shop Drawings	06	Shop Drawings	Fabrication (field measure after framing)	Cabinet Fabricator	Pending
20	All Exterior Casework and Bar Shop Drawings	06	Shop Drawings	Fabrication	Cabinet Fabricator	Pending
21	Trex Decking — Product Data, Color Samples, Installation Plan	06	Product Data + Samples	Installation	GC / Deck Sub	Pending
22	Cable Railing Shop Drawings with Load Calculations	05	Shop Drawings (EOR review)	Fabrication	Railing Fabricator	Pending
23	Tile Samples — All Locations (Floor, Wall, Backsplash, Shower)	09	Samples (4” × 4” minimum each)	Ordering and Owner approval	Tile Subcontractor	Pending
24	Paint Color Schedule / Samples	09	Samples (draw-downs)	Painting	Painting Subcontractor	Pending
25	Hot Tub Product Data (Both Units)	13	Product Data + Installation Manual	Ordering and structural coordination	Owner/GC	Pending
26	Neon / LED System Product Data and Wiring Diagram	13	Product Data + Electrical Drawing	Installation	Electrical Subcontractor / Specialty Vendor	Pending
27	BendPak Lift Installation Manual and	11	Product Data + EOR Review	Concrete slab pour (anchor sleeves must	GC + EOR	Pending

#	Submittal Item	Division	Type	Required Before	Responsible Party	Status
	Anchor Bolt Layout			be set before pour)		
28	Irrigation System Design Plan and Zone Layout	32	Shop Drawings	Installation	Irrigation Subcontractor	Pending
29	Landscape Plant List and Layout Plan	32	Shop Drawings	Planting	Landscape Contractor	Pending
30	Generac Generator Product Data, Pad Drawing, ATS Specs	26	Product Data	Ordering and installation	Electrical Subcontractor	Pending
31	Water Heater Product Data (Rinnai or Rheem)	22	Product Data	Ordering	Plumbing Subcontractor	Pending
32	Hardware Schedule (Coordinated, All Doors)	08	Schedule + Product Data	Ordering	Hardware Supplier / GC	Pending
33	Structural Steel Anchor Bolt Layout Plan	05	Shop Drawing (EOR review)	Concrete pier cap and grade beam pour	Steel Fabricator + EOR	Pending
34	Low-Voltage System Design (Data, Security, Audio)	26	Shop Drawings	Rough-in	Low-Voltage Subcontractor	Pending
35	Wood Flooring Product Data and Sample Board	09	Product Data + Sample	Ordering	Flooring Subcontractor	Pending

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Section 24 — Project Contacts Directory

Lucian DeMarco

Calibration Co. — Project Lead / Architect Intern

Email: lucian@calibration-co.com

Websites: calibration-co.com | luciandemar.co

Phone: 732-666-0496

NCARB Intern #: 692-666 | **Status:** Pursuing ARE Registration

Role: Architectural design, specification, project administration, submittal review, RFI response, site observation coordination

Structural Engineer of Record (EOR)

TBD — Engage Immediately

Status: NOT YET ENGAGED — CRITICAL PATH ACTION ITEM

Required: Florida Licensed PE (Structural), AISC-experienced, coastal construction experience, HVHZ experience preferred

Scope: Foundation design (pier sizing, grade beam design), structural steel design and member sizing confirmation, composite deck design, CMU wall design, shear wall design, load calculations, all structural drawings stamped and sealed, special inspection program co-development

Action: Owner and Lucian DeMarco to jointly select and engage EOR within 2 weeks of project execution

MEP Engineer (Mechanical, Electrical, Plumbing)

TBD — Engage Immediately

Status: NOT YET ENGAGED — CRITICAL PATH

Required: Florida Licensed PE (Mechanical and Electrical, or separate MEP firm), residential and coastal experience

Scope: Mechanical: Manual J/S/D HVAC design, ductwork drawings, equipment schedules. Electrical: Load calculations, panel schedules, lighting calculations, one-line diagram. Plumbing: Pipe sizing, fixture unit calculations, isometric drawings. All drawings stamped and sealed for permit.

Civil Engineer / Geotechnical Engineer

TBD — Geotechnical Report is Critical Path

Status: NOT YET ENGAGED — HIGHEST PRIORITY

Required: Florida Licensed PE (Civil), geotechnical specialty, coastal sandy soils experience, FEMA/NFIP flood compliance experience

Scope: Geotechnical investigation and report (see Division 02 requirements); civil site plan and drainage design; driveway curb cut permit; stormwater compliance

Action: Engage geotechnical engineer IMMEDIATELY — fieldwork typically takes 2-4 weeks; lab testing and report preparation adds 3-4 more weeks. This is the LONGEST LEAD item before foundation permit can be submitted.

General Contractor

TBD — Pre-Qualification Bidding During CD Phase

Status: Pre-qualification process to begin upon CD-01 issuance

Requirements: Florida Licensed CGC (General Contractor), coastal construction experience, minimum 3 references on projects of similar scope (>$1.5M residential), current GL and Workers' Comp insurance, able to provide payment and performance bond

Pre-Qualification Items: Company history, license verification, insurance certificates, 3 project references with contacts, bonding capacity letter, preliminary schedule for this project type

Owner

To Be Confirmed

Status: Owner name and contact information TBD — to be inserted in all contract documents at time of contract execution

Special Inspector / Testing Agency

TBD — Select Prior to Pre-Construction Meeting

Required: ICC-certified special inspectors, AISC-certified for steel, ACI-certified for concrete, IAS or NVLAP accredited testing laboratory

Scope: All items listed in Special Inspections Program (Division 01, Section 01 40 00)

Professional Certification Note

PROFESSIONAL DISCLAIMER — REQUIRED READING BEFORE USE

This Construction Document Specification Package (CD-01) has been prepared by **Lucian DeMarco, NCARB Intern #692-666**, under the direction of Calibration Co., for the Modern Tropical Raised Home project. These specifications represent the design intent developed through the SD and DD phases and are intended for contractor bidding, permit submission coordination, and construction administration.

The following documents require a licensed Engineer of Record (EOR) signed and sealed drawings BEFORE permit submission:

- All structural drawings (foundation, framing, connections, shear walls)
- All MEP drawings (mechanical, electrical, plumbing one-lines and plans)
- Civil site and drainage plan
- Special inspections program (SIP) — co-signed by EOR and Building Official

These specifications alone do not constitute a complete permit set. Permit drawings must be prepared by or under the responsible supervision of a licensed engineer or architect of record for the jurisdiction. Lucian DeMarco is currently an NCARB Intern pursuing ARE registration and is not authorized to independently seal permit documents in the State of Florida without a supervising licensed architect or engineer of record.

Issued: May 8, 2026 | **Project:** Modern Tropical Raised Home CD-01 | **Prepared by:** Lucian DeMarco, Calibration Co.

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