

AT STEEL BUILDINGS • PROJECT DOSSIER / CASE STUDY

LAKEFRONT RESIDENCE

Custom Steel-Framed Home — Windermere, Florida

ENGINEERING THAT SUPPORTS THE FUTURE.



AT Steel framing package erected on site – lakefront residence, Windermere, FL

01 PROJECT IDENTIFICATION

PROJECT NAME	Lakefront Residence – Windermere, FL
CLIENT	Private residence (confidential)
INDUSTRY / SECTOR	Residential – custom single-family (lakefront)
AT STEEL SCOPE	Design + engineering + manufacture + delivery of the steel framing package – installation by others

STEEL SYSTEM	Heavy structural steel + light-gauge steel (LGS): floor trusses, roof trusses, structural & non-structural walls
LOCATION	Windermere, Orange County, Florida 34786
DESIGN → DELIVERY	90 days (design, manufacture, delivery)
DELIVERED	2025

02 KEY FACTS STRIP

BUILDING TYPE	NET LIVING AREA	STEEL SYSTEM
2-story custom residence	≈7,427 SF	Heavy steel + LGS
AT STEEL SCOPE	DESIGN → DELIVERY	YEAR
Manufacture only	90 days	2025

03 PROJECT OVERVIEW

A custom two-story lakefront residence in Windermere, Florida needed a structural framing system that could carry long lake-facing spans and two full stories of living area — roughly 7,400 square feet net — without the movement, combustibility, or termite exposure of wood framing, and on a schedule the build could not wait on. AT Steel designed, engineered, and manufactured the complete steel framing package — heavy structural steel for the long spans paired with a light-gauge-steel (LGS) system of floor trusses, roof trusses, and structural and non-structural wall panels — and delivered the entire package in 90 days. AT Steel's scope was manufacture and delivery only; the builder erected the steel on site. The result is a non-combustible, termite-proof, dimensionally stable steel skeleton for a luxury Florida home — engineered as one hybrid system and delivered ready to stand.

04 CONTEXT & CHALLENGE

A lakefront home this size asks for three things at once that wood framing — or any single structural material — will not deliver together.

1. Long, open lake-facing spans. The lake elevation wanted wide spans and large glazed openings — loads beyond what dimensional lumber or light-gauge steel carry alone, which called for heavy structural steel beams and columns built into the frame.

2. Two stories of stable, non-combustible structure. A ~7,400-SF two-story home in humid, termite-heavy, hurricane-exposed Central Florida needs a frame that will not rot, burn, warp, or feed termites — and that holds tight dimensional tolerances across a large footprint.

3. One coordinated framing package, fast. The build needed the entire structural and wall framing delivered as a single coordinated package, quickly, so the schedule was not waiting on framing — difficult when heavy steel and light-gauge steel come from different suppliers and trades.

A single material or a stick-built frame meets none of those three at once; the heavy steel and the light-gauge steel had to be engineered together as one package.

05 ENGINEERING APPROACH

DECISION 1 Hybrid frame — heavy structural steel + light-gauge steel, engineered as one system

REASON Heavy steel beams and columns carry the long lake-facing spans and transfer loads; light-gauge steel carries the repetitive floor, roof, and wall framing — each material doing what it does best, detailed to connect as a single load path.

OUTCOME Wide, column-light living spaces toward the lake without oversizing the whole frame, and one coordinated package with no gap between the steel trades.

DECISION 2 Light-gauge steel floor and roof trusses

REASON Open-web cold-formed steel floor and roof trusses span the home's bays at a controlled depth, run services through the open webs, and arrive cut and assembled to length — no on-site truss building.

OUTCOME Flat, stiff, squeak-free floors and a stable roof structure across a large footprint, delivered as finished trusses ready to set.

DECISION 3 Light-gauge steel structural and non-structural wall panels

REASON Cold-formed steel stud walls — structural where they carry load, non-structural where they divide space — manufactured to the plan's dimensions with openings already located, interior and exterior.

OUTCOME Straight, non-combustible, termite-proof walls that hold tolerance across two stories, with the exterior walls ready to take the home's stucco envelope.

DECISION 4 Designed, manufactured, and delivered in 90 days

REASON Designing, engineering, and manufacturing the entire heavy-steel-plus-LGS package under one roof — rather than splitting it across a steel fabricator, a truss plant, and a framer — collapses both the schedule and the coordination.

OUTCOME The complete framing package — heavy steel, trusses, and wall panels — designed, manufactured, and delivered in 90 days, ready for the builder to erect.

06 TECHNICAL SPECIFICATIONS

SPEC	VALUE
BUILDING TYPE	Custom two-story single-family residence (lakefront)
STRUCTURAL SYSTEM	Hybrid – heavy structural steel + light-gauge (cold-formed) steel
STORIES	2 (over CMU ground floor / foundation by others)
FIRST FLOOR	3,874 sq ft net • 5,121 sq ft gross
SECOND FLOOR	3,553 sq ft net
NET LIVING AREA	≈7,427 sq ft across two stories
HEAVY STEEL	Structural steel beams & columns at long lake-facing spans and transfer lines
FLOOR SYSTEM	AT Steel LGS open-web floor trusses (galvanized cold-formed steel)
ROOF SYSTEM	AT Steel LGS roof trusses (galvanized cold-formed steel)
WALL SYSTEM	AT Steel LGS structural & non-structural wall panels – interior and exterior
DURABILITY	Galvanized cold-formed steel – non-combustible, termite-proof, dimensionally stable
CODE	Florida Building Code, Residential – engineered for Central Florida wind loads
FINISH / ENVELOPE	Stucco exterior, roofing & glazing by others
FOUNDATION / GROUND FLOOR	CMU + concrete by others (outside AT Steel scope)
AT STEEL SCOPE	Design + engineering + manufacture + delivery
INSTALLATION	By others (builder's framing crew)
DESIGN → DELIVERY	90 days

07 CONSTRUCTION SEQUENCE

AT Steel's scope was design, manufacture, and delivery in 90 days; on-site erection was by the builder's crew. The sequence below shows AT Steel's framing package going up on site.

MILESTONE 01 — Heavy Steel & Ground-Floor Frame	On site, Jan 2025
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- Heavy structural steel beams and columns set over the CMU ground floor, framing the long lake-facing spans and the load-transfer lines that the light-gauge framing hangs from.

MILESTONE 02 — LGS Floor-Truss Platform

On site, Jan 2025



- AT Steel light-gauge open-web floor trusses set across the bays to form a flat, stiff second-floor deck — delivered cut and assembled to length.

MILESTONE 03 — LGS Walls & Roof Trusses

On site, Feb 2025



- Light-gauge structural and non-structural wall panels and roof trusses erected on the heavy-steel frame — straight, plumb, and dimensionally true across two stories.

MILESTONE 04 — Enclosed (finishes by others)

2025



- The completed steel frame dried-in and finished — stucco envelope, roofing, and glazing by others over the AT Steel structure.

08 DELIVERY OUTCOMES

- The complete structural framing package — heavy steel, LGS floor trusses, LGS roof trusses, and LGS structural & non-structural wall panels — designed, manufactured, and delivered in 90 days.
- One hybrid system from one manufacturer: heavy steel for the long lake-facing spans, light-gauge steel for the floors, roof, and walls — coordinated as a single load path, with no gap between the steel trades.
- A non-combustible, termite-proof, dimensionally stable steel frame for a $\approx 7,400$ -SF (net) two-story lakefront home — engineered to the Florida Building Code for Central Florida wind.
- Manufacture-and-delivery scope: the package arrived cut, assembled, and ready for the builder's crew to erect — keeping framing off the critical path of the home's schedule.
- LGS floor and roof trusses delivered as finished, cut-to-length trusses — flat, stiff floors and a stable roof across a large footprint, with no on-site truss fabrication.

09 CLIENT TESTIMONIAL

Optional. A 2–3 sentence quote from the homeowner or builder, specific to the result, can be placed here upon approval. Left as a placeholder — not fabricated.

10 PROJECT GALLERY



Lakefront framing, aerial – LGS floor trusses and heavy steel



Full LGS floor-truss platform forming the second-floor deck

Enclosed structure – stucco and roofing by others over the AT Steel frame



Heavy steel beams carrying light-gauge walls and floor deck



AT Steel LGS open-web floor trusses on a heavy steel support beam



LGS structural walls and heavy steel framing the lake view

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URL SLUG	/projects/steel-framed-residence-windermere-2025
FOCUS KEYPHRASE	light gauge steel framing residential Florida
KEYPHRASE SYNONYMS	LGS floor trusses Florida, steel framed custom home Windermere, cold-formed steel residential framing
META DESCRIPTION	Custom 2-story lakefront home in Windermere FL – AT Steel heavy steel + light-gauge floor/roof trusses & wall panels, designed, made & delivered in 90 days.
FEATURED IMAGE ALT	Steel-framed custom lakefront residence in Windermere, FL – LGS floor trusses and heavy steel framing, aerial view
OPEN GRAPH IMAGE	1200×630 crop of the aerial hero