

IDC APEX

ARCHITECTURAL FACADES & ENVELOPES

Comprehensive Client Technical Master Catalog:
Engineering Analysis, Material Specifications, and Execution Protocols
for Structural Glass, GFRC, ACP, and EPS Solutions.

Vertical: Technical Engineering & Infrastructure Division

Target Markets: Commercial Complexes, Ultra-Luxury Residential & Corporate Silhouettes

Document ID: IDC-FAC-2026-V2

Date of Issue: July 2026

01. EXECUTIVE SUMMARY & BRAND NAMING STRATEGY

Modern structural elevation design is no longer just a combination of brick and mortar. Today, the external envelope of a building dictates its commercial evaluation, longevity, thermal efficiency, and environmental compliance. To move away from the unorganized contractor framework, this master technical document defines the positioning of **IDC APEX**—a dedicated turnkey brand architecture engineered to deliver high-performance facade structures.

"IDC APEX shifts the client conversation from a raw material procurement sheet to a specialized product specification matrix."

The Nomenclature Architecture

To facilitate structured corporate pitches and build premium recall among premium builders and institutional clients, our core elevation capabilities are organized under four strategic technical sub-brands:

Model Name	Material Core	Strategic Application Segment
IDC Apex Vista	Structural Glass & Glazing Systems	High-Rise Corporate Headquarters, IT Parks, Retail Frontages
IDC Apex Form	Glass Fiber Reinforced Concrete (GFRC)	Luxury Institutional Icons, Parametric Residential Villas
IDC Apex Solid	Aluminum Composite Panels (ACP)	Commercial Office Layouts, Weatherproof External Banding
IDC Apex Shell	Expanded Polystyrene (EPS) Profiles	Classic/Modern Hybrid Profiles, Thermal Insulation Projects

By grouping these distinct material technologies under a single engineering banner, IDC provides clients with a unified structural warranty, eliminating the classic friction between multiple site contractors.

02. IDC APEX VISTA — GLASS & GLAZING SYSTEMS

High-performance glass architecture demands rigorous structural calculations to safely counter dead loads, dynamic seismic movements, and immense wind pressures at elevated altitudes. **IDC Apex Vista** covers the full operational spectrum from unitized curtain walls to minimalist spider glazing systems.

Engineering Specifications Matrix

Technical Parameter	Standard Specification	Testing Protocol / Compliance
Glass Types Supported	Toughened Laminated, Double Glazed (DGU), Heat Strengthened	ASTM C1048 / EN 12150
U-Value (Thermal Transmittance)	1.4 to 1.8 W/m²·K (Low-E Matrix)	EN 673 / ISO 10292
Shading Coefficient (SC)	0.28 to 0.42 (High Selective Coating)	ASTM E424
Wind Load Performance	Up to 4.0 kPa (Custom Engineering Available)	ASTM E330 / IS 875 Part 3
Water Penetration Resistance	No leakage at 500 Pa pressure cycle	ASTM E331

System Architecture & Typologies

- **Unitized Curtain Wall Systems:** Entirely pre-assembled and glazed within a controlled factory floor environment before arriving on site. Ideal for high-rise commercial structures requiring rapid, crane-assisted external deployment cycles.
- **Semi-Unitized Systems:** Heavy aluminum structural mullions are fixed directly to the slab anchors on-site, while pre-fabricated glass cassettes are slotted sequentially. Maximizes localized field tolerances.
- **Point-Supported Spider Glazing:** High-tensile stainless steel spiders (Grade 316) handle structural distribution via heavy articulated rout bolts, offering a seamless glass appearance with minimal visible steel profiles.

03. IDC APEX FORM — GFRC ENGINEERING

For modern, organic structures and intricate traditional patterns, traditional concrete casting becomes unfeasible due to high structural dead weight and execution complexities. **IDC Apex Form** uses Glass Fiber Reinforced Concrete (GFRC) to combine high tensile strength with architectural freedom.

Material Science & Load Analysis

The matrix consists of high-grade white alkali-resistant (AR) glass fibers embedded inside a premium silica-cement mortar matrix. The fiber content is precisely engineered at **3.5% to 5.0%** by weight, providing unparalleled flexural capabilities.

Mechanical Property	Observed Value Range	Governing Testing Standard
Flexural Strength (Limit of Proportionality)	7.0 — 11.0 MPa	GRCA Methods / BS EN 1170
Modulus of Rupture (MOR)	18.0 — 28.0 MPa	ASTM C947
Dry Density Matrix	1900 — 2100 kg/m³	EN 1170-4
Impact Resistance Index	10 — 15 N·mm/mm²	BS 6432

Structural Anchoring Framework

GFRC panels do not rest their load on structural masonry. Instead, they interact with the building via a custom steel sub-frame setup. Heavy-duty galvanized MS brackets are chemically anchored to building columns/slabs, holding the panels using flexible pin joints to isolate seismic energy and prevent micro-cracking during building settlement.

04. IDC APEX SOLID & SHELL — ACP & EPS CLADDING

This section covers clean geometric paneling and lightweight architectural detail moldings, outlining the rigorous performance specifications for our ACP and EPS workflows.

IDC Apex Solid: Aluminum Composite Panel Specs

Inferior ACP cladding poses high fire hazards. **IDC Apex Solid** uses fire-retardant core systems wrapped between two sheets of high-grade aluminum alloys, finished with premium Fluoropolymer (PVDF) coatings.

Technical Parameter	FR Grade Standard	Standard Grade Reference
Total Panel Thickness	4.0 mm / 6.0 mm	ASTM E84 Compliant Core
Aluminum Skin Thickness	0.50 mm Alloy 3003 / 5005	EN 485-2
Core Material Composition	Mineral-filled Fire Retardant Core (Class B-s1, d0 or Class A2)	EN 13501-1 Fire Test
Coating Dry Film Thickness	> 28 microns (PVDF 2/3 Coat system)	AAMA 2605 / Kynar 500

IDC Apex Shell: Expanded Polystyrene (EPS) Systems

For complex external moldings, heavy concrete shapes strain structural elements. **IDC Apex Shell** provides custom-cut high-density EPS profiles covered with a flexible, polymer-modified cementitious base coat and reinforced glass fiber mesh layer to deliver lightweight durability.

- **Density Configuration:** Deployed exclusively at **20 — 28 kg/m³** to guarantee long-term shape memory and wind resistance.
- **Thermal Resistance Benefit:** Acts as a reliable Exterior Insulation and Finish System (EIFS), drastically decreasing HVAC utility bills.
- **Aesthetic Flexibility:** Allows rapid production of deep architectural columns, classical cornices, window borders, and linear grooves without altering slab load limits.

05. TURNKEY INTEGRATION & STRUCTURAL WARRANTIES

The definitive advantage of selecting the **IDC APEX** vertical lies within our comprehensive project execution cycle. We minimize structural risk by combining structural design calculations, sub-frame fabrication, thermal calculations, and final alignment checks under one technical umbrella.

Quality Assurance Blueprint

Every single project site undergoes a standard sequence of internal check-gates prior to handoff:

Stage	Operational Checkpoint Target	Acceptance Tolerance Level
01	Laser/Total-Station Slab Dimension Audit	Max variation $\pm 4.0\text{ mm}$ over 30 meters
02	Anchor Pull-Out Resistance Tests	Minimum design load 7.5 kN safe hold
03	Torque Calibration on Structural Bolts	Verified via digital torque wrenches
04	Field Water Testing on Facade Joints	Zero dampness at 2.0 bar spray cycle

Comprehensive Structural Warranty Terms

IDC stands behind its engineered solutions, offering corporate clients a comprehensive warranty structure that guarantees performance across key areas:

- **10-Year Structural Integrity Warranty:** Covers sub-frames, anchors, and brackets against structural failure, buckling, or localized joint separation.
- **10-Year Coating Performance Warranty:** Guarantees that PVDF coatings on ACP panels and specialized finishes on GFRC elements will not peel, blister, or experience abnormal color shifting beyond $\Delta E = 5$ units under extreme UV exposure.
- **5-Year Glazing Systems Weatherproof Seal Warranty:** Covers against dynamic water leakage and structural silicone structural degradation under extreme atmospheric conditions.

