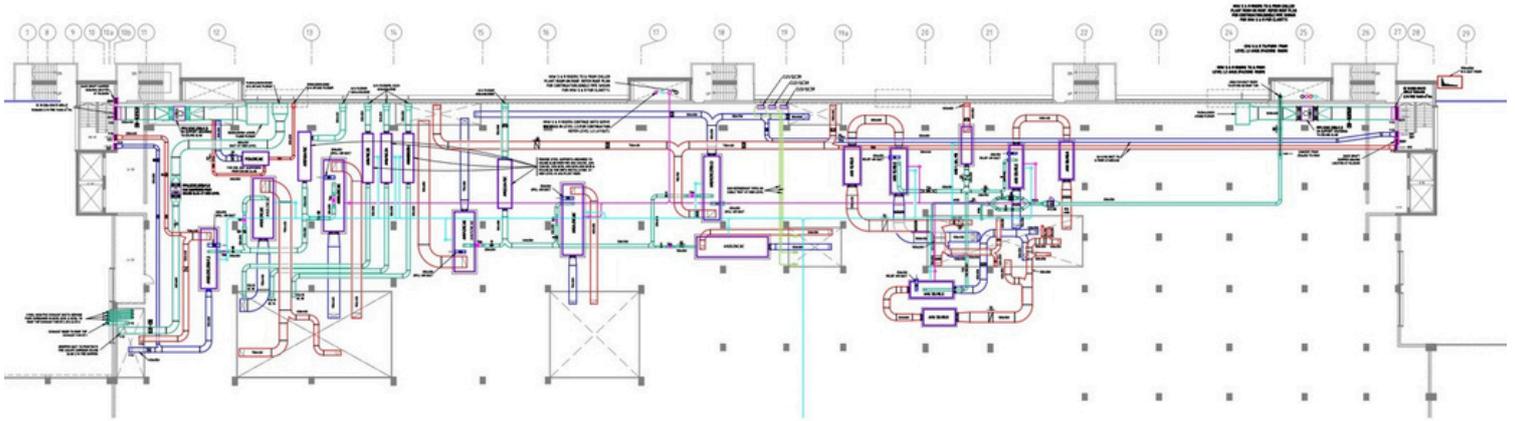


CASE STUDY

Case Study: Case Study: Auto CAD HVAC Design for Commercial and Residential Projects

Client: An HVAC contractor seeking precise AutoCAD designs for heating, ventilation, and air conditioning (HVAC) systems for both residential and commercial buildings.

Objective: Develop detailed AutoCAD HVAC drawings to optimize airflow, ensure energy efficiency, and comply with industry standards such as ASHRAE and local building codes.



CHALLENGES

Complex HVAC Layouts: Required an accurate design for ductwork, air handling units (AHUs), diffusers, and ventilation systems in multi-story buildings.

Energy Efficiency Optimization: Needed precise calculations to optimize airflow, reduce energy consumption, and improve indoor air quality (IAQ).

Coordination with Other MEP Systems: Prevent clashes with plumbing, electrical, and structural components.

Regulatory Compliance: Ensure the HVAC system adheres to ASHRAE, SMACNA, and local energy efficiency regulations.

OUR APPROACH

we bring ideas to life through cutting-edge CAD
design services

Work Processes

- Requirement Analysis & Planning

1. Collected project specifications, including cooling/heating loads, occupancy levels, and ventilation needs.
2. Reviewed architectural and structural plans to integrate HVAC components efficiently.

- Auto CAD HVAC Drafting & Design

1. 2D HVAC Drawings: Created detailed duct layouts, diffuser locations, and air handling unit placements.
2. 3D HVAC Modeling: Developed 3D models to visualize airflow, duct routing, and mechanical room layouts.
3. Load Calculations: Performed heat load calculations to determine proper HVAC equipment sizing.
4. Duct & Pipe Sizing: Used industry formulas to optimize ductwork and refrigerant piping dimensions

- Compliance & Quality Check

1. Verified HVAC layouts against ASHRAE and local energy efficiency codes to ensure compliance.
2. Conducted clash detection using Revit and Navisworks to prevent conflicts with plumbing and electrical systems.
3. Performed CFD (Computational Fluid Dynamics) analysis to optimize airflow distribution

- **Client Review & Revisions**

1. Presented the initial HVAC design to the client for feedback and necessary modifications.
2. Incorporated suggested changes and ensured the final design aligned with project requirements.

- **Final Delivery & Documentation**

1. Delivered AutoCAD files (DWG, PDF) with detailed labeling for easy installation.
2. Provided Bill of Materials (BoM) listing ducts, vents, and mechanical equipment.
3. Supplied installation guidelines to assist HVAC contractors with on-site execution.

Result

- **Established Online Presence:** Launched a professional website, increasing visibility and accessibility.
- **Enhanced Client Engagement:** Implemented features that improved client interaction and satisfaction.
- **Compliance Achieved:** Ensured the website met all regulatory and accessibility standards.

Conclusion

Developing a new website for ReNu Solutions involves careful planning, design, and implementation to meet industry standards and client needs. By following this framework, the organization can establish a strong online presence, improve client engagement, and ensure compliance with relevant regulations.