

## Hardware Requirements

### Minimum (baseline to run most apps)

- OS: Windows 10 or Windows 11 (64-bit)
- Processor (CPU): Intel Core i3 (10th gen or newer) / AMD Ryzen 3 (2nd gen or newer)
- Memory (RAM): 16 GB (dual-channel strongly recommended)
- Storage: 512 GB SSD (NVMe preferred) with 25–50 GB free for temp/cache
- Graphics (GPU): Dedicated GPU recommended (NVIDIA). 4 GB VRAM minimum for 3D work
- Display: 1920×1080 (Full HD)
- Network: Broadband internet; Ethernet recommended for large model sync
- Other: Mouse with scroll wheel; admin rights to install software and drivers

### Recommended (smooth performance for 2D/3D, medium projects)

- OS: Windows 11 Pro (64-bit)
- Processor (CPU): Intel Core i5/i7 (11th gen or newer) or AMD Ryzen 5/7 (3rd gen or newer) with high single-core turbo
- Memory (RAM): 32 GB
- Storage: 1 TB NVMe SSD (PCIe Gen3 or Gen4). Optional second SSD for project files/scratch
- Graphics (GPU):
  - NVIDIA GeForce RTX 3060/4060 or NVIDIA RTX A2000 (or better)
  - 6–8 GB VRAM minimum
  - Use NVIDIA Studio drivers for stability
- Display: 2560×1440 (QHD) or 3840×2160 (4K); optional dual-monitor setup
- Network: Wired Gigabit Ethernet (1 Gbps). Wi-Fi 6/6E as a backup
- Peripherals: 3Dconnexion SpaceMouse (optional), headset for calls/collaboration

### Optimal / Advanced (large BIM models, heavy 3D, point clouds, rendering)

- OS: Windows 11 Pro (64-bit)
- Processor (CPU): Intel Core i7/i9 (12th gen+ with strong P-cores) or AMD Ryzen 7/9 (Zen 3+). Higher clocks help Revit/AutoCAD; more cores help rendering/simulations
- Memory (RAM): 64 GB (or 128 GB for very large projects/point clouds). Prefer 2× or 4× matched DIMMs (dual/quad-channel)
- Storage:
  - System: 1 TB NVMe SSD
  - Projects/Scratch: Additional 1–2 TB NVMe SSD
  - Optional NAS for team collaboration and backups
- Graphics (GPU):
  - NVIDIA RTX 4070/4080 or workstation-class NVIDIA RTX A4000/A4500 (or better)
  - 12 GB+ VRAM for complex scenes, high-res textures, large view ranges
  - Keep drivers updated (Studio branch)
- Display: Dual 27" QHD/4K monitors; color-accurate panel (IPS) if doing visualization
- Network: 2.5 Gbps LAN where available; QoS for cloud collaboration

## Additional Technical Notes

### CPU Guidance

- High single-core speed benefits drafting and many view/navigation tasks.
- More cores/threads benefit rendering, simulation, and batch processes.
- On newer Intel hybrid CPUs (P-cores/E-cores), ensure the latest BIOS/Windows updates and vendor utilities to pin Autodesk apps to performance cores if needed.

### RAM Configuration

- Use dual-channel (matched sticks) for bandwidth.
- Enable XMP/EXPO profiles where supported.
- For workstations handling huge datasets, consider ECC RAM (if the platform supports it) for stability.

### Storage & File Handling

- NVMe SSDs greatly reduce load times. Keep at least 20% free space on the system drive.
- Separate “scratch/cache” or project drive improves performance for large models, renders, and point clouds.
- Use fast local SSD for active projects; sync to NAS/Cloud outside production hours where possible.

### Graphics & Drivers

- NVIDIA is generally preferred for broad compatibility and viewport performance.
- For maximum stability/support, consider NVIDIA RTX (A-series) workstation GPUs.
- Keep drivers on the Studio channel (not Game Ready) for CAD/DCC stability.
- Aim for:
  - 4–6 GB VRAM: light 3D/small projects
  - 8–12 GB VRAM: medium/complex models
  - 12–24 GB VRAM: very large models, point clouds, heavy textures, multi-app pipelines

### Display & Peripherals

- 100–125% scaling at QHD/4K often yields the best UI readability.
- A 3D mouse (3Dconnexion) can improve navigation efficiency in 3D apps.

### Networking & Collaboration

- Wired Ethernet is strongly recommended for model sharing, cloud sync (Autodesk Docs, etc.), and license check-ins.
- Use UPS/power protection on desktops and NAS.
- For remote work, prioritize low-latency connections and VPNs sanctioned by IT.

### OS & Software Prereqs

- Keep Windows fully updated.
- Ensure Microsoft Visual C++ redistributables and .NET Desktop Runtime are installed as required by specific Autodesk apps.
- Install the latest Autodesk Desktop App/Access for managing product updates (as permitted by IT).



## Quick Tiered Specs (At-a-Glance)

Tier	OS	CPU (examples)	RAM	Storage	GPU (VRAM)	Display	Key notes
T1 — Entry 2D	Windows 10/11 (64-bit)	Intel Core i3 10th+ / AMD Ryzen 3 2nd+	16 GB	512 GB NVMe SSD	NVIDIA dedicated ≥4 GB	1080p	AutoCAD 2D, Docs, light tasks. Use dual-channel RAM.
T2 — Core 3D/BIM	Windows 11 Pro	Core i5 11th+ / Ryzen 5 3rd+	32 GB	1 TB NVMe	RTX 3060/4060 or RTX A2000 (6–8 GB)	1440p (ideal)	Revit/Civil 3D mid-size, Inventor mid-size, basic Navisworks. NVIDIA Studio drivers.
T3 — Performance BIM/Coord	Windows 11 Pro	Core i7 12th+ / Ryzen 7 (Zen 3+)	64 GB	1 TB NVMe (OS) + 1 TB NVMe (projects)	RTX 4070 or RTX A4000 (12–16 GB)	Dual QHD	Large BIM models, heavy coordination, multi-app workflows.
T4 — Heavy Viz & Point Clouds	Windows 11 Pro	Core i9 13th+ / Ryzen 9 7000	64–128 GB	2 TB total NVMe (1 TB OS + 1 TB projects)	RTX 4080/4090 or RTX A5000 (16–24 GB)	Dual 4K	ReCap/laser scans, advanced visualization, large textures. Optional NAS.
T5 — Studio/Sim/Render Node	Windows 11 Pro	Xeon W / Threadripper Pro	128–256 GB (ECC)	2 TB NVMe + 4 TB extra	Depends on engine (CPU/GPU)	Headless or 1×QHD	Render CPU/GPU, CFD/Moldflow, batch queues. ECC & stability first.

## Use Case → Suggested Tier

Use case	T1	T2	T3	T4	T5
AutoCAD 2D, documentation	✓				
AutoCAD basic 3D	✓	✓			
Revit — small project	✓	✓			
Revit — medium project		✓	✓		
Revit — Large project			✓	✓	
Civil 3D — small surfaces/corridors	✓	✓			
Civil 3D — medium/large datasets			✓	✓	
Inventor — small assemblies	✓	✓			
Inventor — medium/large assemblies		✓	✓		
Navisworks — basic coordination	✓				
Navisworks — intensive coordination		✓	✓		
ReCap Pro — point clouds				✓	
3ds Max/Maya — modeling		✓	✓		
3ds Max/Maya — heavy GPU rendering				✓	✓
CFD/Moldflow — simulation					✓
Omniverse / VR / XR		✓	✓		

## Fast sizing rules

- CPU: Higher turbo clocks improve drafting/navigation; more cores help rendering/sim.
- RAM: 32 GB is the practical floor for 3D; 64 GB for large BIM; 128 GB for point clouds/render/sim. Use matched DIMMs; enable XMP/EXPO where supported.
- GPU (VRAM): 4–6 GB (basic), 8–12 GB (mid/advanced), 16–24 GB (very large/VR/point clouds). Prefer NVIDIA Studio drivers.
- Storage: Always NVMe. Keep  $\geq 20\%$  free. Separate OS and projects/scratch when possible.
- Displays: QHD for productivity; 4K for detail (ensure adequate GPU).
- Networking: Wired Gigabit (or 2.5 GbE) for model sharing; VPN approved by IT for remote. Use a UPS on desktops/NAS.
- Compliance: Standardize on Windows 11 Pro, BitLocker, and vendor-approved drivers for manageability in U.S. enterprise environments (Intune/SCCM).

Notes (US): Prices in USD; taxes/shipping not included. Availability subject to change. Enterprise licensing, volume discounts, and maintenance options available upon request.

