

AVAYA



Equipment Enclosures for an Uncertain World



Communication without boundaries

WHY spend five precious minutes reading about equipment enclosures?

After all, it's only a box.

But there's money inside this box. Your money. Are you comfortable depositing it in a safe with walls only 1/8" thick? You can be, if it was built by Avaya.

Read on. Give us five minutes, and we'll explain why companies all over the world have turned to Avaya to protect their considerable investment in network equipment. And why you'll be glad you did, too.

In an uncertain world, your decision can minimize disaster

THE TORNADO struck nine days before Christmas, 2000. In minutes it claimed 12 lives, one a child whose photograph was later found in a field 160 miles away.

Classified as an F4 storm (5 is worst), the tornado plowed a half-mile-wide furrow across 11 counties. Winds of up to 260 mph (418 kph) flattened 75 homes, demolished 60 buildings, and left telephone service — intact.

Surrounded by the wreckage of pulverized homes, an Avaya enclosure kept equipment functioning reliably, during and after the storm.

A fluke? The catastrophe that struck Gadsden, Alabama may have seemed so. But the performance of this Avaya equipment enclosure wasn't. It was designed and tested to survive six of the most challenging scenarios your network equipment may ever face — fire, flood, earthquake, hurricane, the evolution of technology and the constraints of your budget.

Think *inside* the box

Designed by the engineers of Avaya Labs (formerly a part of Bell Laboratories), the equipment enclosures that now bear the Avaya name have served reliably since 1974 in some of the most demanding climates on earth.

More than 250,000 Avaya enclosures have been placed in service around the world — from the baking dunes of Saudi Arabian deserts to the sub-Arctic tundra of Alaska; from the steamy forests of the Philippines to the rarified altitudes of Argentina.

But protection against these external threats is only part of the reason for worldwide acclaim of Avaya's Outside Plant (OSP) and Business Remote Terminal (BRT) solutions. Some of the most important reasons don't show on the outside. They show in far more important ways — in the rock-solid reliability that keeps you competitive, the built-in versatility that easily accommodates new configurations as equipment evolves, and the critical design innovations that can save you money from the first day your Avaya equipment enclosures are deployed.



Avaya builds reliability

Equipment enclosure must pass 16 brutal tests of ability to withstand crisis conditions before earning the Avaya name (see page 7). Proof of their legendary durability is shown in this photo, taken after a tornado struck Gadsden, AL on December 16, 2000. An Avaya enclosure was the only structure left standing after 260 mph winds (418 kph) completely destroyed adjacent homes. Even though it sustained minor damage, the Avaya enclosure protected electronic equipment so well that it continued functioning, and Avaya emergency response teams were able to replace the enclosure with a new one within hours of the storm's passing.



Avaya innovations beat the heat to extend battery life

New cooling technology is just one example of the many innovations that make Avaya uniquely qualified to handle both present and future generations of network equipment.

Avaya's patented Enhanced Cooling System uses unique methods of thermal control to cool even densely concentrated electronics and batteries operating at peak traffic loads — without the expense and potential safety concerns of some battery compartment designs that can allow hazardous buildup of trapped hydrogen gas.

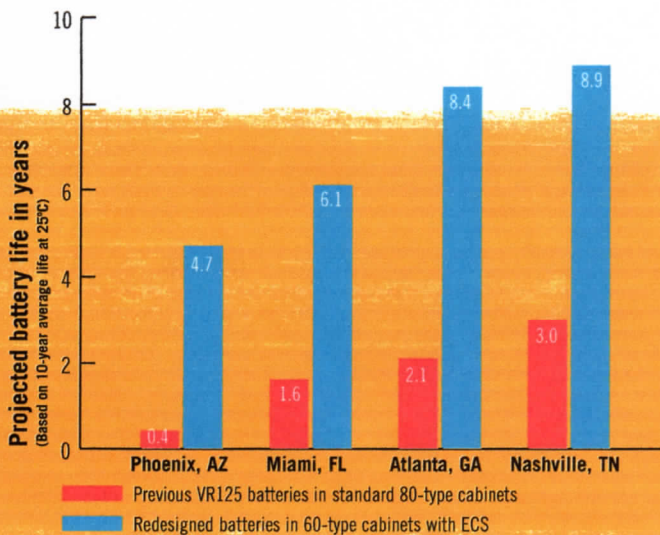
The result: Safer facilities, greatly increased backup power reserves, and batteries with up to 1175% longer life spans than previously possible. Additional features such as per-string battery disconnect can further reduce your operational costs by allowing batteries to be replaced on the fly, without interrupting power output.

Multi-vendor integration and testing? We do it every day.

Every builder of equipment enclosures claims "custom configurations a specialty." But none has Avaya's depth of experience in integrating systems from many different vendors into enclosures built to protect and optimize the performance of each component.

Our advanced assembly processes are tightly interfaced with literally hundreds of electronic equipment manufacturers. This gives Avaya the unique ability to integrate even the most disparate components into smoothly functioning systems.

And each enclosure we build is tested — not only for ability to withstand the external threats described on page 7, but internally. Every conductive path inside every enclosure is checked before shipping to assure flawless performance of the integrated systems inside.



Cut battery replacement costs by 92%

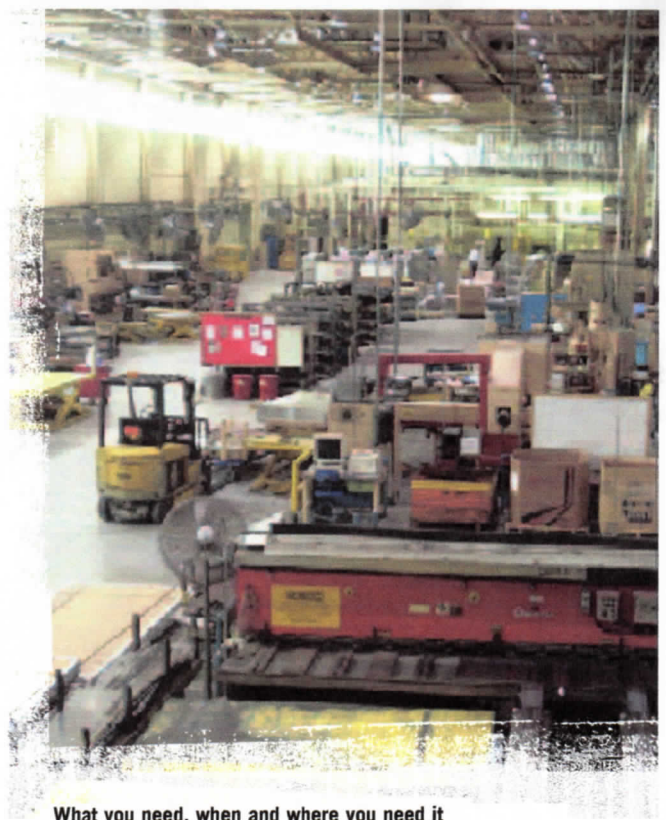
Redesigned batteries protected by Avaya's patented Enhanced Cooling System (ECS) can deliver reliable reserve power for many years in the most demanding environments. The graph at left shows projected life of previous lead-acid VR125 batteries versus redesigned IR125 with ECS, in climates where high temperatures and humidity can adversely affect battery life. The efficient ECS system exploits thermal lag principles to cool batteries by intelligent use of ambient air and cabinet insulation, unlike the high-cost, high-maintenance "sealed box" design used in some enclosures. Our open architecture design costs less to install and maintain, can extend battery life by up to 1175% in some climates, and easily dissipates hydrogen gas that can accumulate and explode in sealed box designs.

Avaya does it all for you — with absolute ISO 9001 certainty

Unlike many enclosure manufacturers, Avaya is fully equipped to design, build, assemble, test and deliver enclosures built to your specifications.

In Avaya's 2.5-million-square-foot primary manufacturing facility, more than half a million square feet is devoted to the fabrication and integration of custom-built enclosures. Here, we start from scratch, transforming raw aluminum, galvanized and stainless steel into complex, integrated enclosures built to individual specifications. And from our distribution centers in Europe, Asia and the United States, we can deliver them virtually anywhere in the world — on time, at budget.

The complexity, size and precision of our manufacturing facility is matched by few others in the world. Avaya is certified to ISO 9001 standards to qualify as one of the world's foremost "best in class" manufacturers, based on independent cost-based and performance-based measures of quality and reliability.



What you need, when and where you need it

Avaya equipment enclosures are designed, built, assembled and tested in one of the world's largest manufacturing facilities in Omaha, Nebraska. Additional facilities worldwide allow Avaya to manufacture customized enclosures for fast delivery wherever they're needed. In each plant, our unique processes combine the efficiency of mass production with the personal attention to detail that has earned Avaya's worldwide reputation for consistent quality, performance and reliability.

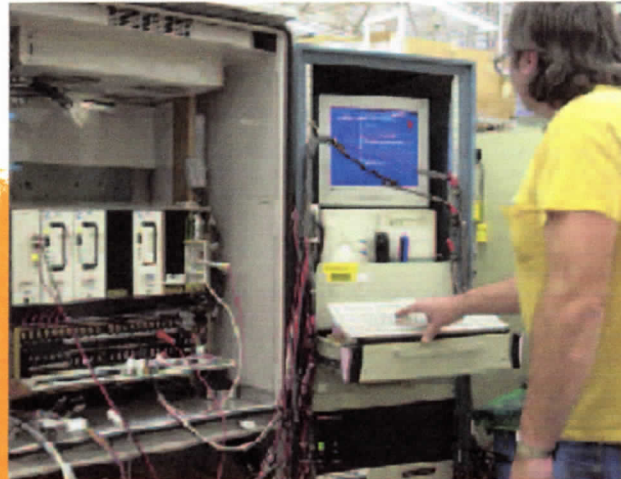
Avaya equipment enclosure applications

- Digital Subscriber Line (xDSL) equipment
- Digital loop carrier systems
- Central office extensions
- Fiber interconnect equipment
- Fiber multiplexers
- Repeaters
- CATV fiber nodes
- Broadband power and video nodes
- Multi-vendor electronics
- Power supply nodes for wireless
- Reserve power supply
- Wireless radio equipment
- Remote switches
- Cross connect equipment



Quality control? We invented it.

As part of Bell Laboratories, our engineers developed the principles of statistical quality control that later were codified into ISO 9001 standards. Today, as Avaya, we continue that heritage with manufacturing processes that meet or exceed all industry standards including ISO 9001 and Telecordia TR-TSY-000487 (and local equivalent standards).



Customer service and satisfaction are our first priorities

Of the many things Avaya does well, we're most proud of our reputation for the best customer service in the industry. For nearly three decades, some of the largest companies in the world have relied on Avaya for personalized help, advice and support that goes far beyond the sale.

At Avaya, customer service begins on the factory floor, where quality control specialists verify the performance of every enclosure, and assure that it ships on time in perfect condition. It continues long after delivery, whenever a customer has questions about installation, maintenance, upgrades or repair. And it takes to the field, any time, anywhere it's needed. Our emergency response teams are highly trained, experienced and equipped to minimize your down time when disaster strikes.

We build solutions. For companies, for people, for you.

The full extent of Avaya's product lines cannot be described in this small document. But we can deliver the solutions you need. Our products cover the spectrum, from small indoor equipment cabinets to complex arrays of outside plant facilities.

And we continue to explore new ways to serve the needs of evolving equipment technologies. Avaya Labs' enormous investment in research — from 5% to 9% of our annual revenues in recent years — has yielded a host of innovative solutions to help you protect your considerable investment in network systems equipment.

To learn more about the Avaya product family, visit our Web site at www.avaya.com/connectivity, or contact your Avaya representative by calling 1 800 4CABNET (1 800 422-2638). We'll be glad to explain how we've surpassed the expectations of companies large and small, around the world. And how quickly, easily and inexpensively we can do the same for you.

Protecting your equipment protects our reputation

Building the world's best equipment enclosures is a heavy responsibility. To assure their legendary reliability, Avaya equipment enclosures must survive 16 rigorous procedures in our custom-built testing facilities with no loss of function.

Avaya Equipment Enclosures

Testing Performed

Test Procedures

Natural Disaster Testing

Earthquake test	Must withstand simulated seismic stress of Zone 4 earthquake
Heavy rain test	Water sprayed at 45° and 90° must not penetrate cabinet
Fire resistance test	Must withstand simulated brush fire with no damage or loss of function

Extreme Weather Testing

Hurricane test	Must withstand 75 mph (120 kph) wind-driven rain in hurricane test facility
Lightning ground current test	Must withstand 1,000-amp ground current for 20 seconds without failure
Weather tightness test	Fine silicate powder blown at 60 mph (97 kph) must not penetrate cabinet
Wind resistance test	Wind tunnel velocity of 100 mph (161 kph) must not overturn mounted cabinet

Structural Integrity Testing

Impact resistance test	Each exposed surface must withstand 100 ft-lb. force with no loss of function
Shock and drop test	Must withstand 1 inch drop (2.54 cm) on all corners, with and without container
Transportation vibration test	Must withstand hydraulic vibration simulating worst-case shipping stress
Lifting detail strength test	Must withstand lift forces of 6 times cabinet weight with no loss of function
Door restrainer strength test	Open door must not be damaged by 40 mph (64 kph) wind from both sides

Climate & Performance Testing

Thermal performance test	Must maintain function during simulated worst-case heat, solar load and wind
Battery ventilation test	Must prevent explosive gas buildup during simulated worst-case fault conditions
Acoustical suppression test	Noise must be below 65 dB from 5 ft. (1.5 m) away with all systems running
Paint adhesion test	Painted surfaces must withstand scraping loop with 18 lb. (8 kg.) load

For more information on our products, please contact your Avaya Sales Representative or call 1-800-4CABNET (1-800-422-2638). You can also visit our website at www.avaya.com/connectivity

This document is for planning purposes only and is not intended to modify or supplement any specifications or warranties relating to Avaya products and services.

AVAYA