
phone
Hands Free Phone

New designs for public telephone enclosures are needed to meet new demands imposed by various locations and surroundings, while, at the same time, traditional designs must be continually updated. New concepts, therefore, are continually developed and tried.

Diversity in Public Telephone Enclosures

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IN OUR FAST-MOVING SOCIETY, public telephones are a necessity. Travelers as well as local residents expect to find a coin telephone near at hand wherever they go —along the highways, on busy downtown street corners, at the country club, at the airport, in office building lobbies. This wide range of locations and conditions demands a variety of enclosures for public telephones. And perhaps just as much demand for variety is generated by esthetic considerations.

In this article, I will describe the standard public telephone enclosures as well as some of the new developments on the horizon. The ten standard enclosures include three indoor booths, three wall-mounted shelves, two outdoor booths, a "walk-up drive-up" mounting, and a doorless kiosk. All of these enclosures can have several mounting arrangements, sign features, directory mountings, and in some instances a variety of colors or finishes. All have been designed on the premise that enclosures must be attractive and safe, and at the same time provide a secure mount for the telephone.

An example of the continuing development work done by Bell Labs engineers is an experimental enclosure, the "hands-free" booth, which provides a coin-telephone facility that completely does away with the handset. The hands-free booth is expected to provide a real convenience to the user, whose hands are free to refer to papers or take notes. Moreover, removal of the handset and its cord should result in less field maintenance, since these items are prone to damage by vandals.

The hands-free coin telephone uses a speakerphone set instead of the conventional handset. Now in field trials, the hands-free booth is expected to reduce field maintenance. To minimize noise inside the booth, sound-absorbing panels replace much of the glass area of the conventional booth. Customers, nevertheless, can see into and out of the booth. For maximum privacy in a conversation, the customer can turn the volume control low and speak close to the transmitter.

Hands-Free Booth

The hands-free coin facility consists of an aluminum booth equipped with a speakerphone telephone system. To make such a booth practical, Bell Labs engineers tackled a two-sided problem: noise. On one side, the noise level inside the booth must be low enough that the speakerphone system can operate properly; on the other, for the sake of privacy, a conversation should not be overheard when the outside noise level is low.

The standard speakerphone telephone cannot switch from the transmit channel to the receive channel if the sound intensity is greater than approximately 82 decibels. Since the sound level at a busy city street corner may often be above this value, the speakerphone in such a situation would lock in the transmit channel and a two-way conversation would be impossible.

Therefore, in addition to shaping the frequency response of the speakerphone circuits, we had to modify the standard aluminum booth design extensively to produce the acoustic characteristics necessary for satisfactory service. We replaced the all-glass wall of the standard booth with a full-length vertical acoustic panel and a narrow panel of glass (see illustration above). This combination provides only half the interior surface area for sound absorption, since there must be sufficient glass area for the occupant to see in all directions and for people outside the booth to readily determine whether the booth is occupied.

We further insulated the booth from external noise by closing the usual blow-through space at the bottom of the booth with solid panels. The blow-through space was useful because it allowed breezes to sweep through and clear the bottom of the booth of discarded paper and debris, but it did not give maximum quietness. However, if debris collection and cleaning become too much of a problem for the Operating Companies, it may be necessary to sacrifice acoustic performance slightly.

We also designed a quieter and more effective ventilation system for the new booth. The new system draws air into the booth at approximately 120 cubic feet per minute through special perforated panels inserted in the bottom of the door, exhausts the air through the ceiling, and discharges it through openings in the front sign. The system changes the air in the booth about twice every

minute, and can therefore clear away smoke and stale air rapidly (and maintain the air temperature near that of the surrounding air). This provides additional comfort for the public coin telephone customer.

With the noise control afforded by the new booth, satisfactory speakerphone service is possible in all but the most noisy environment. Sound entering the booth is attenuated by 16 to 18 dB, so that external noise levels as high as 90 dB can be tolerated. This noise level corresponds to that of a crowded city sidewalk with heavy traffic passing by. Perhaps the only urban environment in which the hands-free booth would not be suitable is one in which the noise of heavy bus or truck traffic is combined with the sounds of heavy construction—air compressors, jack hammers, etc.

Low frequency sounds—those below about 300 hertz—are always difficult to control in a phone booth. Large masses of attenuative and absorptive material would be needed to attenuate these low frequencies, and there is not enough room for such materials in a booth. Fortunately, however, the speakerphone system is not sensitive to these lower frequencies.

We solved the problem of ensuring privacy for callers in a quiet environment by positioning the speaker in the back wall, near the ear of the caller. By speaking close to the transmitter, the caller brings his left ear close to the speaker and can therefore turn the volume low—the acoustical coupling, in fact, approximates that obtained with a conventional handset. With the booth's sound-absorption properties, the caller can not readily be overheard by anyone outside the booth.

An on-off switch, volume control, and transmitter are housed in an aluminum casting and installed on the faceplate of the coin telephone where the switchhook would ordinarily be. The speakerphone equipment is stored in the ceiling. Local electrical power is required for operation. A timed turn-off circuit has been included in case the customer forgets to push the "off" button when his call is over. A production version of this booth would be line powered so that it could continue service during a power black-out.

Thirty-five hands-free booths are now undergoing field trials in six cities. Although speakerphone booths have been tried in the past, this is the first investigation of outdoor use and the most extensive evaluation. The trial is expected to last six months. Its results will determine the immediate future of hands-free calling from public telephones. The booths have received a favorable response from many customers, and although results to date are incomplete, they are encouraging.

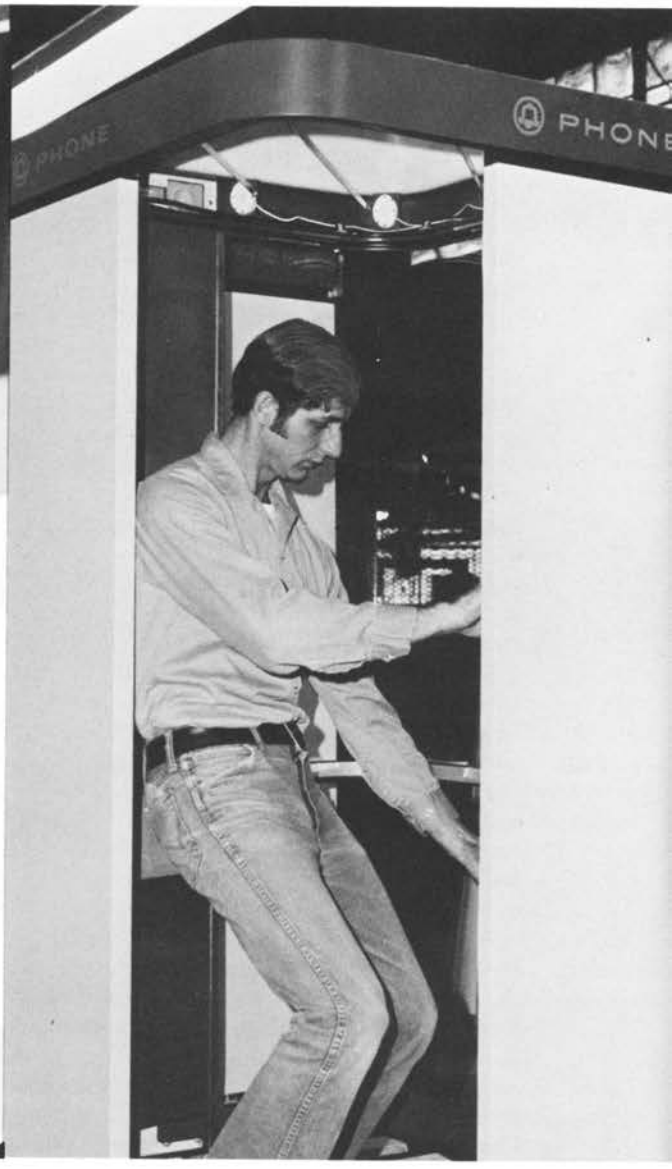
The "architectural" booth makes public telephones an integral part of an interior space, like these in the Port Authority Trans-Hudson terminal at New York City's World Trade Center.

Architectural Walk-In

Another experimental coin-telephone enclosure highlights another aspect of enclosure design: appearance. With increasing frequency, architects are demanding telephone enclosures that blend into the decor of buildings. The architects of the new World Trade Center in downtown New York City, for instance, sought an enclosure for coin telephones that would become an integral part of the Center's interiors. In response to their needs, engineers at Bell Labs developed the architectural booth, many of which have already been installed at the Center. This work was done in conjunction with Henry Dreyfuss Associates, a firm which has been a consultant to the Bell System on esthetic and human factor requirements for many years.

This coin telephone facility consists of a welded steel center frame covered with a stainless steel faceplate. Bronze-colored glass wings extend outward on each side (see illustration above). The booth can be installed singly or in multiples. It is highly versatile: it can be supported on a pedestal, wall ledge, or on a beam between two columns.

The goal of the World Trade Center architects



was to provide public telephone facilities as part of the structural whole, not as an afterthought. Thus, in the Port Authority Trans-Hudson terminal at the Center, they have mounted the booths on a ledge and have continued the floor surface (of quarry tile) smoothly up the face of the ledge. These booths were designed for the Center, but we anticipate Systemwide interest as well.

Diamond Kiosk

The diamond kiosk (see above), is a modern, doorless, acoustically treated telephone station most suitable for sidewalk, open mall, or park-type installations. This booth was developed for the "Beautiful America" program and received Fine Arts Commission approval for sidewalk use in Washington, D.C. The kiosk is probably the most attractive and economical walk-up station that provides customer shelter.

The kiosk is supported by two structural steel legs which position the main structure about 15 inches above the mounting or pedestrian surface. Two V-shaped corner panels, approximately 16 inches on each side and diametrically opposed, form the enclosure. Acrylic plastic panels close one side of the kiosk between the corner panels and the entrance. The interior surfaces adjacent to the steel corner panels are perforated stainless steel over sound-absorbent Fiberglas.* A directory holder may be attached under the large contoured stainless steel shelf. The roof and ceiling of the kiosk each feature a lighted translucent dome to produce a skylight effect. The domes are illumi-

*Trademark Owens Corning Fiberglas Corp.

Evolution of a telephone booth: far left, Norris R. Hall and Richard D. Gibson, engineers at Bell Labs in Indianapolis, discuss details of the diamond kiosk with the aid of a scale model; center, a kiosk is shown being assembled at the factory; finally, a kiosk is shown installed near Illinois Bell's headquarters in Chicago.

nated by fluorescent lamps. Power and telephone lines enter from underground and channel upward through a support leg; however, modifications are being made to permit overhead access. The support legs may be buried in concrete, or a fabricated base—including the supporting legs—may be ordered for surface attachment to existing concrete using lead expansion-type inserts. Like all outdoor enclosures, the kiosk is designed to withstand lateral loads equivalent to 100-mph winds.

Several other engineering changes in the kiosk design are being made in response to field experience. For example, the drain facility for the roof section is being enlarged to minimize blockage by leaves. Similarly, an edge guard is being added to prevent paint from being abraded from the edge of the doorway by the armored cord of the coin telephone when a customer stands in the doorway during the call.

Wooden Booth

The familiar wooden booth (page 172) is the oldest of the ten standard enclosures furnished by the Bell System. It was first manufactured in quantity in the 1920's and has been modernized many times, most recently in 1964. The wooden booth is the most economical complete coin telephone enclosure. It may be readily installed in multiple arrangements and is available for either stand-up or sit-down calling. The exterior comes in walnut, mahogany, birch, or oak finishes; the interior is ceramic-fired enamel, which is scratch resistant and easily cleaned.

Although the wooden booth is one of the smallest, it nevertheless has a ceiling height of over 76 inches and an entry width, with the door open, of about 21½ inches. These dimensions equate to the large man (bigger than about 97 percent of

The wooden telephone booth is the oldest in the Bell System, but its design has been continually updated. Here, a nurse makes a call at Clara Maass Memorial Hospital in Belleville, New Jersey.

the population) who is about 6 feet 4½ inches tall and has a shoulder width of about 20 inches without heavy clothing.

Curved Door

Whereas the wooden booth uses the conventional bifold door, a modern all-steel indoor booth has a unique curved sliding door (page 173). Like the bifold door, the curved sliding door meets safety objectives, since it does not open or swing into the adjacent aisle or public traffic areas. The door is supported on an overhead track, slides from right to left to open, and is stored in the left wall of the booth when it is open. Problems associated with door abuse have recently been solved with the addition of special stops to absorb the energy of the door when it is violently slammed to its full open position. The curved door booth is equipped for sit-down service with a molded gray Fiberglas seat and shelf. The interior is ceramic-fired enamel, and the exterior is finished with gray vinyl textured paint except for a colored front accent panel in white, blue, or orange.

Deluxe Booth

The third standard indoor booth is a deluxe model and is the most expensive standard enclosure (page 173). It is recommended for contemporary buildings where a spacious, open look is needed. It features full-length glass panels, slender vertical corner mullions, a shelf of ¾-inch-thick heat-tempered glass, and a contoured foam cushion seat. Interior trim and the glass paneled bifold door frame are black-anodized aluminum. The vertical mullions are finished with snap-on cladding in polished aluminum, stainless steel, or bronze-anodized aluminum. This booth may be ordered with a floor or, to achieve an integral look, without a floor when it is intended to be anchored to the building surfaces.

The floor material for indoor booths is a synthetic rubber specially developed by Bell Labs for its wear- and skid-resistance. Skid resistance is an obvious safety requirement. The importance of wear resistance may not be so readily apparent. When his call is finished, the customer typically pivots on his right foot to leave the booth; this region of a booth floor is thus subject to unusually severe wear conditions. Experience has proved that the synthetic rubber stands up under such hard wear.

The curved-door booth blends with the elegant surroundings at this restaurant in West Orange, N. J. The door slides into the wall of this booth when open, and thus does not obstruct traffic.

The deluxe booth, with its expanses of glass, gives a spacious look in contemporary structures, as in this motel lobby. Vertical supports are in aluminum, stainless steel, or bronze finishes.

Universal and Airlight Booth

The two booths most often installed outdoors are similar except for size. The "universal" booth (which also may be used indoors as an alternative to the wooden booth), is the smaller and is the one most often used for sidewalk installations in large cities (page 174). The larger "airlight" booth, although sometimes used on sidewalks, is more often installed in parking lots, service stations, and along highways (page 174). Both booths are constructed from aluminum extrusions and share many common parts. For security, the backboards for installation of the coin telephone are integral with the booth structure. (Tests at Bell Labs in which we attempted to force the coin telephone from its booth mounting resulted in almost total destruction of the booth without success in removing the coin telephone.) The exterior surfaces have an anodized aluminum finish, highly buffed and lustrous. A number of options are available so that the booth can be outfitted to suit the surroundings: tempered glass panels; blue, gray, or red porcelain enamel panels for optional use in place of the glass; and tempered glass signs with ceramic-fired paint on the reverse or interior side.

The heat-tempered glass has an impact strength approximately three times that of normal sheet or plate glass, and when broken, it shatters into small gravel-like pieces without jagged edges. (Although this glass is relatively safe when broken, Operating Companies are experiencing considerable breakage caused by vandals, and we are investigating several plastics that might prove to be suitable alternatives to glass.)

Both outdoor booths and the indoor booths are prewired for the coin telephone. They may be permanently wired for electrical power at the site, or they may be ordered equipped with a plug-ended cord for electrical connection.

All five of the standard booths (wooden, curved door, deluxe, universal, and airlight) employ a light-and-blower fixture for illumination and ventilation. For indoor booths, the fixture is equipped with a single ballast and 40-watt circular fluorescent lamp. For outdoor booths, the fixture has two ballasts and two lamps to illuminate the area around the booth as well as the interior of the

The universal booth is the one most often used for sidewalk installation, but it is also used indoors. Here, callers use universal booths at Clara Maass Memorial Hospital, Belleville, N. J.

The airlight booth is similar to the universal booth but larger. Like the universal, it can be used indoors or out. This group of airlight booths is outside a motel near the Newark, N. J., airport.

booth. These ballasts can start lamps at temperatures as low as −10°F with the ac power supply voltage as low as 105 volts. Although fluorescent lamps are more expensive initially, they are used in all standard stations because their service life is approximately ten times the life of incandescent bulbs. In fact, there are instances where lights have been on continuously for two years.

The light-and-blower fixture mates with a circular, translucent diffuser and opaque air grill assembly in the ceiling. In conjunction with the diffuser, this fixture illuminates the shelf level to about 25 footcandles for indoor booths and better than 40 footcandles for the two-lamp outdoor booths. Both the light diffuser and the centrally located air grill are flame-retardant, breakage-resistant polycarbonate, and will survive most accidental drops by booth cleaners or repairmen. For outdoor booths, a photoconductive light cell and relay switch assembly is optional. The assembly is adjusted at the factory to turn the lights on when ambient light drops to 3 footcandles and to turn the lights off when the ambient light rises to 10 footcandles. A time delay prevents the photocell from responding to transient light sources such as passing automobile headlights.

The quietness of an enclosure is always an important consideration. Outdoor booths typically attenuate external noise by about 5 dB, and indoor booths attenuate by 10 to 12 dB. The difference between the two types is primarily caused by the degree of closure. The outdoor booths have more noise-admitting cracks and, in particular, have open panels at floor level. Although this open area at the floor helps to keep the booth clean of debris, it causes a decided loss in acoustic performance, as was explained earlier regarding the hands-free booth. A way to improve the acoustics of all booths

would be to use sound-absorbent material in the walls of the booth. Engineers at Bell Labs are studying the possibility of using such panels in the outdoor booths. However, the opaque surface presented by acoustic panels would have to be balanced with the need for coin telephone users to see into and out of the booth.

Walk-Up Drive-Up Enclosure

Another enclosure intended to give Operating Companies added flexibility in meeting outdoor requirements is the walk-up drive-up enclosure (at right). The walk-up drive-up enclosure employs a structural steel mounting post with a V-shaped cross-section. When two such posts are assembled back-to-back (that is, with the points of the "V's" touching), two, three, or four coin telephone stations may be installed on the two posts. This multiple installation is often used in open malls with heavy customer traffic, such as shopping centers. To add versatility, wall-attachment supports are available so that the walk-up drive-up enclosure can be installed on a flat wall or in a corner. The enclosure can accommodate either the conventional "1-type" coin telephone (the familiar box shape measuring approximately 7 x 6 x 21 inches) or the newer "2-type" coin telephone (which comes with a stainless steel panel for flush mounting).

An optional canopy and a mast and lighted sign can be added to outdoor walk-up drive-up installations. The sign, which is supported on an extruded aluminum mast, is triangular in cross section and displays the telephone handset symbol on the three vertical faces. To minimize field replacements, the sign is illuminated by a mercury lamp with a rated life of approximately 15,000 hours. It can be operated by the light control switch. For drive-up use, a single, shorter post and mounting base support the coin telephone housing.

Standard Shelf

Wall-mounted shelves are a popular alternative to booths for indoor use. The first standard shelf, introduced in 1964, consists of a structural frame, made from aluminum extrusions, that supports decorative panels (page 177). The panels can be selected to match most decoration schemes: porcelain enamel panels in blue, medium gray, or dark gray; transparent and translucent plastic panels; and melamine-finished panels in four wood grains. Acoustic panels with an aluminum surface that is specially textured and perforated are also available. The texture limits abuse from writing and marking and also hides the acoustic perforations to avoid the vertigo that many people experience when they stare at closely spaced holes.

The walk-up drive-up enclosure offers easy accessibility in a variety of configurations. It can be used singly along highways like this enclosure on Long Island, New York, or it can be used as a single, double, or quadruple installation for walk-up use.

The shelf comes with a ¾-inch-thick plywood backboard for attaching it to the wall. Holes can be easily drilled in the backboard at the site, permitting screws to be placed in the wall in locations of greatest wall strength and in numbers sufficient to guarantee station security. The backboard is equipped with steel inserts, known as "tee" nuts, so that the shelf frame can be attached to it with machine screws. The shelf is 25½ inches wide and extends 12 inches from the wall. For directories, a two-section pocket holder or a hanging-type holder can be selected. Although the hanging holder is more expensive, it provides greater security and protects the directory so that it lasts

longer. The sign for the shelf can be ordered with cord and plug for connection to a receptacle or it can be permanently wired at the site.

Wedge Shelf

The wedge shelf, introduced in 1969, accommodates either 1-type (conventional) or a 2-type (panel) coin telephone. For the panel coin telephone, the wedge shelf comes in right- or left-hand versions (that is, with the telephone at a 45-degree angle in either the right or left corner) which can be attached to the surface of the wall or recessed in the wall (page 177). For the conventional coin telephone, the shelf is a right-hand, surface-mounted model. This shelf is about 28 inches wide and extends from the wall about 15 inches on one end and about 7 inches on the other end.

The exterior of a surface-mounted shelf is oyster gray and the interior surfaces are perforated stainless steel covering acoustic absorbent material. An integral light fixture illuminates both the telephone and the front header sign. Recent design changes allow permanent wiring or cord-and-plug wiring for connecting of adjacent shelves. A bronze-finished version of this shelf is being designed to satisfy the demands of architects for bronze decor.

Small-Talk Shelf

The most recent shelf design, the "small-talk" shelf, was undertaken to provide a small, low-cost wall mounting for a conventional 1-type coin telephone (page 177). Essentially this low-cost design consists of a backboard, a single-piece shelf of molded, contoured Fiberglas, and a sign—either a porcelain-enameled nonlighted sign or a lighted sign. A directory pocket is an integral part of the shelf. The writing surface has a stainless steel insert to guard against cigarette burns. The shelf comes in blue or sand beige and is most appropriate where minimum capital investment is indicated. Thus, it should be attractive for "semi-public" installations such as business telephones (in service stations and bars, for example).

Vandal-Resistant Enclosure

In outdoor locations, intentional damage to telephone enclosures in the form of vandalism is a serious and pervasive problem. To ensure that public telephones are available to customers when they need them, Bell Labs engineers have developed a vandal-resistant walk-up enclosure. This new enclosure need not be limited to rugged-service applications, however. Although the basic components are designed specifically for ruggedness, the overall design has the flexibility to serve other, more deluxe, applications. Optional accessories will adapt the station to most environments in which a pedestal-type station is required.

The primary element of the vandal-resistant enclosure (page 178) is a hollow 6-foot-long post of structural steel which can be installed on a steel platform base on existing concrete or can be attached to a base buried in concrete when the site is prepared. The conventional 1-type coin telephone is recessed into the post to a depth that covers the joint between the front and rear housing of the coin telephone. The fasteners that secure the coin telephone to the post are inserted from within the instrument and are thus hidden and protected from all unauthorized access. Power and telephone wiring enters at the top of the post or from underground, terminating in a service entrance box in the lower section of the post. If a small convenience shelf and, optionally, a directory are installed on the post, the station is suitable without a housing for many indoor uses where wall attachment is not possible or desirable.

To be suitable for outdoor use as a vandal-resistant station, a rugged ¼-inch thick tempered aluminum wraparound housing should be used on the post—for weather protection as well as for added security for the coin telephone. The housing is equipped with a light fixture to illuminate the telephone and the front sign. The Bell insignia and word "Phone" are punched in the front steel header and closed with a translucent backplate. This housing can be added without disturbing the coin telephone. Power can be provided by plugging the line cord attached to the housing into a convenient receptacle box in the post. The housing is attached to the post with four screws, two within the sign area and two near the bottom of the housing. These screws are inserted with the front cover of the post removed. All exposed screws are of a tamper-resistant type.

Now under development for possible future introduction is an overhead 7½-foot-long mast intended to hold a lighted sign. Both power and telephone service wires may be dropped to this twin spire mast and fed down through the hollow aluminum extrusions to the top of the post.

Whatever the type of the pedestal station, the design engineer must direct special attention to keeping the natural or resonant frequency of the

Three shelves: the standard shelf provides an accessible, compact enclosure for a telephone (top left); the wedge shelf has a stylish appearance, yet takes up little space in busy areas such as this corridor at Pittsburgh Airport (bottom left); and the newest shelf enclosure, called the "small-talk" shelf, offers maximum economy (bottom right).

assembly at or above 10 Hz. The average person can generate effective cyclic horizontal forces having a frequency of at most about 5 or 6 Hz with his own body. Therefore, by keeping the resonant frequency above the normal human capability, the designer ensures that the station is safe from deliberate attempts to shake it down.

The designs for the vandal-resistant station have been released to Western Electric for production. However, so that the station can be wall-mounted, development is continuing on a backboard for the tempered-aluminum security housing. In addition, a larger housing, with acoustic treatment and weather protection for the user, is being developed for the post system. Since housings can be changed without interrupting coin service or making changes in the power wiring, this second, deluxe walk-in housing can be readily furnished for optional use on the post. The effectiveness of acoustic treatment of any enclosure is limited by the open area. Typically, acoustic treatment can attenuate noise in an "open" enclosure like the vandal-resistant station by about 5 dB. This is a significant noise reduction, however, because any improvement greater than about 2 dB is discernible to the human ear. Moreover, the absorptive material is more effective on the higher frequencies and thus changes the noise characteristics of the booth in such a way that it "sounds better" to the user.

Low-Profile Booth

Two other enclosure designs are of considerable interest, although they must still be regarded as experimental. One of these is the "low-profile" enclosure—a structural steel framework covered by molded contoured Fiberglas (opposite page). The major portion of the station is cantilevered from two side legs; the seat assembly is supported from the back wall. A perforated stainless steel interior covers sound-absorbent Fiberglas, and a large convenience shelf with a directory holder extends along the left side. This is a 53-inch-high deluxe station for sit-down service that is suitable for airports, civic centers, and other large, covered mall areas. The Fiberglas side and back covers can be removed from a single station to permit stations to be assembled in-line and back-to-back in any number required.

Park Kiosk

Another "experimental" design is the park kiosk (opposite page), an ideal enclosure for park and highway locations. This enclosure consists of a conical Fiberglas enclosure assembled to a single post fabricated from a large aluminum extrusion. The station allows secure, semirecessed installation of the coin telephone. The conical enclosure is constructed in two halves and attached to the post. Like the diamond kiosk, the park kiosk has a roof section containing both interior and exterior translucent plastic domes, which are lighted at night by fluorescent lamps.

The park kiosk demonstrates that ruggedness can be combined with beauty: the exterior surface has a concrete-aggregate-like finish that is highly vandal-resistant. The energy of heavy blows applied to the exterior surfaces is readily absorbed by the Fiberglas backing, and the aggregate finish effectively hides any chips or scratches. The rough surface finish also inhibits writing or other deliberate defacing attempts on the exterior surfaces. The surface is made by casting silastic material on concrete aggregate to obtain a pliable mold liner, which produces an accurate reproduction of the aggregate surface. After the Fiberglas has cured in this mold, the pliable liner is stripped away to reveal a surface that

The vandal-resistant enclosure protects vulnerable parts of a coin telephone. The enclosure is supported by a rugged pedestal. The mast and lighted sign shown here are under development and planned for future introduction. The enclosure can be used indoors, too, when attachment to a wall is not practical.

is a duplicate of the original concrete aggregate. One station has been constructed for field trial; in almost two years of service, it has required no repairs and little maintenance. Moreover, it has accumulated higher revenues than adjacent stations have.

As the needs of telephone companies evolve, and as new needs appear, the demands imposed on public telephones will change accordingly. Thus, the development of public telephone enclosures is a continuing long-term effort, aimed at providing effective telephone service for the customer while at the same time providing the security features necessary to protect the Operating Company investment and revenues. This development effort has its basis in the philosophy that only by considering the overall man-machine interface and the coin station environment can the Bell System Companies continue to provide public telephone service of high quality.

The low-profile enclosure, an experimental design, is intended for airports, civic centers, and other deluxe applications. Low-profile booths can be assembled in groups, in-line or back-to-back.

The park kiosk, in field trial at Jones Beach State Park, New York, is designed for national and state parks and similar areas —along highways, for example—where ruggedness must be combined with looks that harmonize with natural surroundings.