eXapath™

BRIDGE THE GAP BETWEEN BROADBAND AND HOME CONSTRUCTION™

Save Time and Money While Preparing the Broadband Home

The concept of building a "smart" home -- a dwelling wired to accommodate comprehensive home office, home automation, security or home entertainment systems -- may be appealing but the cost of doing so is often out of reach. Many homeowners are confused about the cabling required to support broadband consumer services throughout the life of their homes. In anticipation of "smart home" adoption, many homes are outfitted with the contractors' best educated guess about the kinds of low voltage cabling that may be required for future applications. Many of these cabling solutions become obsolescent before the intended applications ever get implemented, creating problems of obsolescence, waste, and significant remodeling when applications are ultimately adopted.

According to focus-group research released by the National Association of Home Builders Research Center, "technology-enabled houses appeal to very few builders because they believe smart houses are too complicated, too expensive and cause more problems than they are worth". [1]

"You know how many problems you have at home just with the VCR, TV and cable box?" said a Chicago builder. "Multiply that by 50" [2]. Perhaps that's why only one in three builders offer "structured wiring" as a standard feature or an option, according to the builders association.

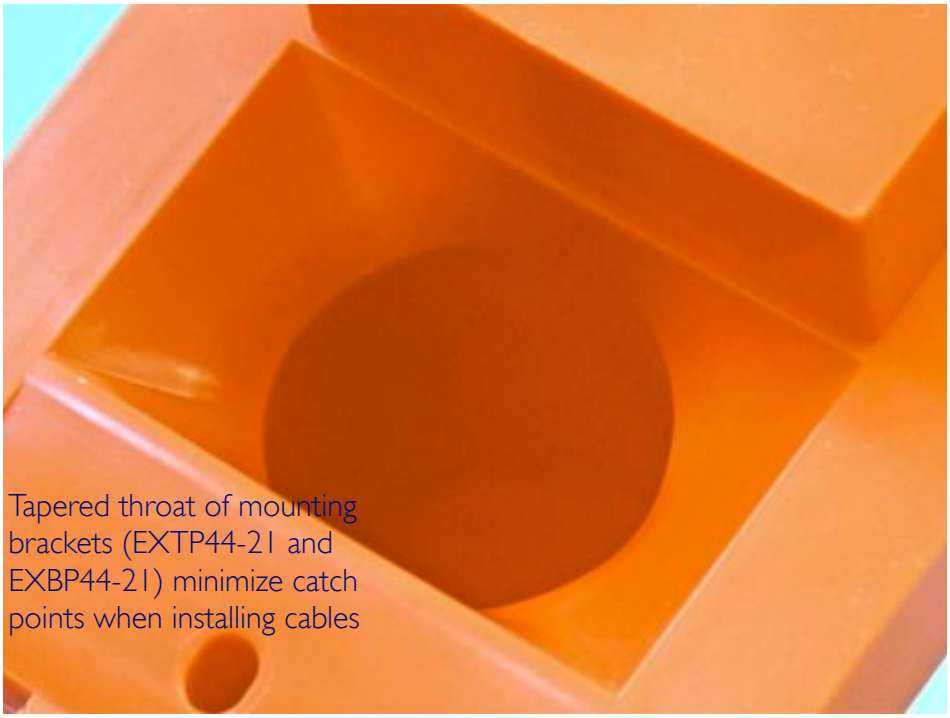
Structured wiring, the current backbone for smart houses, is the dedicated, behind-the-wall communication lines necessary to make houses brainy. It combines all conventional electrical and phone wires into one system made up of at least two coaxial cables (RG-6) for video and two twisted-

benefits

- Straight, short cable pulls with plenty of pathway volume
- Hidden behind drywall until needed
- Complements todays best insulation
- Generations of low voltage cable moves, adds and upgrades
- Flexibility to repurpose living spaces

Homepath Products

Homepath Products LLC designs and produces the patent-pending eXapath in-wall cable pathway system as a way to create dwellings that conserve energy while keeping pace with consumer electronics technology.



Tapered throat of mounting brackets (EXTP44-21 and EXBP44-21) minimize catch points when installing cables

pair cables of Category 5 performance, or higher quality, for phone lines and data transmission.

Consumer electronics will continue to require more data services at increasingly fast speeds. This trend correlates with advances in Internet technology that will continue to grow for many years. Accordingly, there is a burgeoning need for specialized house cabling systems that will enable consumers to take full advantage of these technologies.

Cabling pathways installed during the framing process

Traditional homebuilding practices do not adequately address the significant difference between power cabling (e.g. line voltage) and the low voltage cabling that supports voice, video, data and security applications. Line voltage cabling is subject to the standardized capacity metered out by the electric utilities to feed appliances at constant rates. Varying the power capacity to your stove or refrigerator is an unwanted disadvantage and will damage your appliances. However, with low voltage applications, being able to improve the capacity of the wires for higher data throughput is not only desirable, but may be required for more sophisticated "data appliances" in the years to come.

Rapidly changing consumer electronics require homeowners to adapt with advances in cabling technology to support increased data speeds. Traditionally, upgrading low voltage cables causes significant homeowner disruption and wall destruction in addition to the expenses involved in adding or removing cables. Therefore, it becomes advantageous for the contractor and homeowner to preinstall cabling pathways when the home framing is built. This allows simple and cost effective location changes for new computers, multi-media, and networking equipment without the expense and disruption of invading walls to pull new cables through or behind. In the future, homes that allow the flexibility for quick and easy wiring changes, when compared to those that do not, will retain value and be more attractive to home buyers.

The one thing we know for sure is that consumer electronics evolve rapidly...and so do the cables they need

Convert the structure into a technology adoption platform

eXapath runs from floor to ceiling leaving an accessible path for moves, adds and upgrades to low voltage cables. eXapath media outlets can be installed anywhere along the pathway, before or after drywall.

Integrates with traditional construction

The eXapath system was designed with the installer in mind

No special tools

If you have a drill and screw driver you have the tools you need. *(Requires 1 3/4" self-feed, 2 1/8" hole saw and 1" Brad Point bits.)*

Pre-cut for 8 and 9 foot stud cavities

Minimize time and reduce scrap with pre-cut eXapath conduits. Pre-adjusted to accommodate the shoe, plate and mounting bracket thickness. Can also be cut on site for non-standard lengths.

Built-in T-square

Flip the mounting bracket upside-down and use it as a T-square for accurate drill point markings.

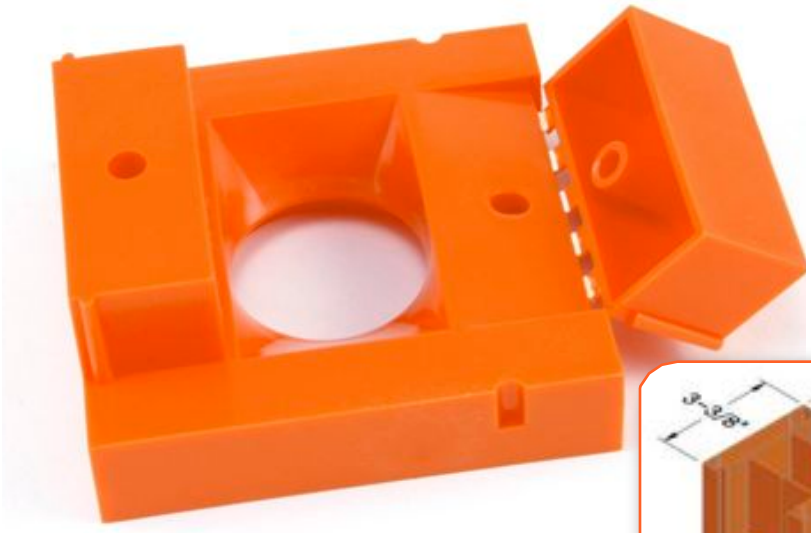
Unique marker guide

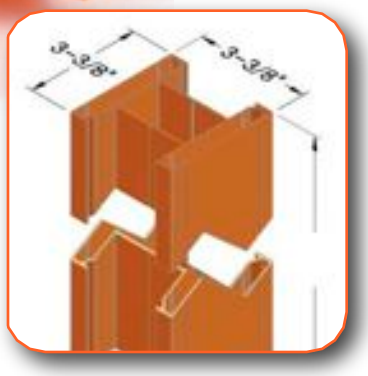
Marker guide provided to accommodate carpenter pencil or felt-tipped pen. Ensures accurate positioning before drilling through shoe or plate of wall cavity.

Adding outlets is easy

Easily add eXapath media outlets (EXBXSG-21). All it takes is a common 2 1/8" hole saw to create a port and they snap in securely, before or after drywall is installed.

Living hinge helps mounting bracket (EXTP44-21 & EXBP44-21) align against shoe or plate during installation then "rolls" and snaps securely in place against eXapath conduit for secure installation.



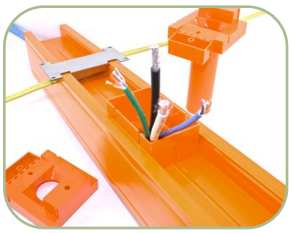


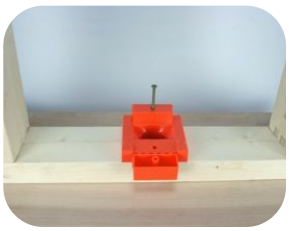
The addition of cabling pathways has minimal impact on traditional construction practices

The builder sees traditional framing as a sub floor platform built over floor joists and beams. This sub floor supports the walls dividing rooms within the house or the outer walls of the building. Walls are built using commonly available 2" x 4" and 2" x 6" wood or metal vertical studs that are fastened to the floor with an additional horizontal "shoe". A "plate" supports the top of the wall and may also provide important load bearing to support a second floor.

After framing, electricians initially drill holes in the shoes to route electrical cables behind walls from below the floor, or in the plates, to route cables down from above the ceiling. Electricians drill horizontal holes in the sides of the studs to allow line voltage cables to run behind walls to electrical outlets.

This paper describes the practicality of an innovative new system of geometrically optimized conduits, mounting brackets with pipe tails and sockets, and outlets that complement the traditional wooden or metal studs and drywall used to frame and finish a room. The system is called eXapath™ (patent pending), and is optimized for use with traditional lumber materials. The eXapath system is easy to assemble using commonly available tools with no additional or unique skills required of an experienced builder or electrician. In a typical installation, eXapath vertical conduits are installed in addition to every standard third or fourth wooden or metal stud during the framing process.





Ideal for low voltage applications in the home

- Media rooms
- Whole-house audio
- Data wiring
- CATV
- Home theater
- Speaker wiring
- Home automation
- Security wiring
- Fiber optics
- CCTV

Saving Time and Money

Easily add outlets before or after drywall is in place…for the life of the home

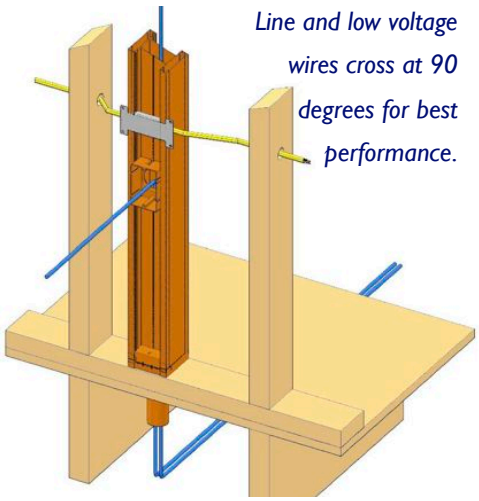
Before the drywall is up:

Designed for quick assembly, and similar to traditional framing, eXapath products cut the amount of time required for cabling installation by providing a pathway with large volume to easily allow the additional and removal of low voltage cables.

eXapath conduits install within the wall cavity complementing every third or fourth stud. This provides convenient cabling pathways spaced four to five feet apart on each wall. The pathways can

be cabled immediately or at a later date by simply drilling through the drywall and into the eXapath conduit using a standard hole-saw.

Whenever an outlet is needed in a room during the construction stage, the electrician or electronics systems



Line and low voltage wires cross at 90 degrees for best performance.

Create a port in the eXapath conduit using a common 2 1/8" hole saw and snap the eXapath outlet in place.

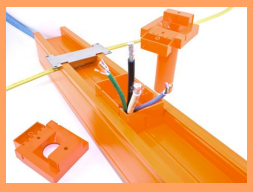
contractor (ESC) can install outlet boxes at any vertical position along the eXapath conduit. The installation is simplified by way of v-grooves built into the eXapath conduit to provide a handy pilot drilling point. Creating the conduit port for the outlet is a simple matter of using a standard lockset hole saw (2 1/8" diameter) and then snapping the eXapath outlet in place taking advantage of the unique installation features built into the eXapath conduit. Once the hole is added, the contractor or homeowner simply installs a molded plastic eXapath outlet capable of housing cable terminations and multi-media outlets for data, voice, audio/video and security needs. There is no need to fasten the outlet box with any screws or metal fasteners. Drywall may then be applied. When the room is finished, there is no difference in appearance between a traditional wall and a wall provisioned with eXapath cabling pathways.

Great for difficult installations

Mates with commonly available 1 1/4" schedule 40 and flexible residential conduits.

When installations get tricky or an enclosed cable way is needed, the eXapath system easily connects to common 1 1/4" conduits, leaving a continuous path from within the wall to a central distribution or patch panel.

The eXapath system is simple



Three primary components include the main cable pathway, a mounting bracket, and a second mounting bracket with penetrating pipe.

The system also includes optional snap-in media outlets and steel nail plates to prevent damage to line-voltage wiring.

Installer in mind

The eXapath system provides tremendous value to the homeowner by enabling generations of low voltage wiring upgrades...

What's even better is that the system was designed to make the installers job easier, before and after cables are run.

Install features

1

Simple and quick installation using common tools. Built-in T-square, marker guide and alignment features.

2

The eXapath system is sized to match the width of 2 x 4" studs. It fits in 2 x 4" or deeper walls and aligns with the edge of the frame to make intimate contact with interior drywall surface.

3

Leaves an accessible vertical pathway for moving, adding or upgrading low voltage wires.

Benefits

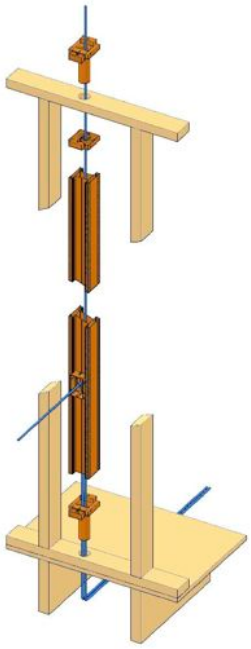
Accurate marking to ensure precise placement and drilling of framing and simple alignment of installed eXapath system.

After drywall is installed, the eXapath system can be found using a common stud finder set to high sensitivity. Once located, the procedure for adding media outlets is quick and easy..

Eliminates fishing through insulation and disrupting the insulation envelope when removing or upgrading low voltage wires.

After the drywall is up:

The center of the eXapath cabling conduit is readily findable behind the wall using a standard low-cost commercially available stud finder. So, to Install a new outlet in a fully finished drywall or paneled room, it's a simple matter of locating the eXapath conduit, marking its center, boring a small hole through the drywall at the center mark of the v-groove and then cutting an opening in drywall using the eXapath outlet as a marking template. A 2 1/8" hole saw is used to create an access hole in the installed conduit so the outlet can be snapped into place. This is a significant advantage of the eXapath conduit system over conventional conduits, which do not allow outlet boxes to be easily installed after the walls are finished. In addition, eXapath conduits allow for the addition of outlets at any vertical position along their length significantly enhancing the flexibility of where low voltage cabling outlets may be installed.



As home design and construction becomes more sustainable advanced insulating materials like sprayfoam are used. Great for energy conservation but tricky when it comes to installing new wires and cables...eXapath provides the solution.

Installation of the eXapath system is quick and easy using the tools you already have on the job-site.

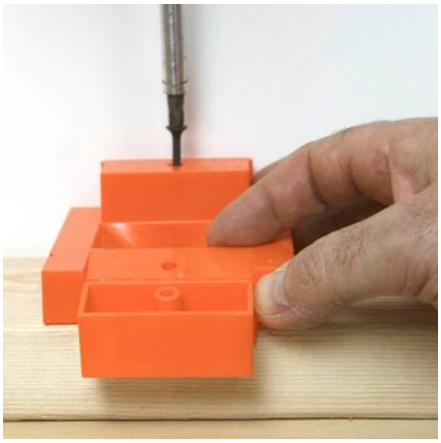
The eXapath system also:

- Eliminates destructive drilling through finished floors
- Eliminates the time and expense of "fishing" cables through small holes and through insulation
- Minimizes the amount of destruction to the drywall or expensive paneling
- Eliminates drywall replacement, mudding, sanding and re-painting

eXapath conduit systems significantly reduce the costs of a new low voltage installation by simplifying the job and reducing the time it takes to dress the finish work. The system also minimizes the project waste stream because outlets and copper cabling can be installed opportunistically where and when they are needed. eXapath pre-installed low voltage conduits give the homeowner the full flexibility and control to determine when to invest in new cabling, as well as a means to install new cabling without disruption or destruction to a home's frame structure and drywalls. Perforations due to hole drilling that affect the structural integrity of new framing are minimized. Fish tapes for pulling cables through confined spaces are no longer necessary. Installing eXapath conduits at planned locations in every room during new home construction ensures that the home is ready for very simple low voltage cabling upgrades wherever and whenever needed.

Cabling pathways built into the frame of a home

These new pathways can be built into the framing in two different configurations. If cables are to be routed from the floor below, the preferred method of installation is to use an eXapath mounting



bracket with pipe through the shoe at the base of the wall and an eXapath mounting bracket with socket on the plate on top of the wall. The pipe will require that a hole be drilled through the shoe and sub floor into which the pipe is inserted. The eXapath mounting bracket is then fastened to the shoe via standard nails or screws using the rear receptacle of the mounting bracket. An eXapath mounting bracket with socket is then nailed or screwed in place on the opposing top plate. Once installed, a precut section of eXapath conduit is inserted and snapped in place between the mounting brackets. Final fastening is a quick matter of rotating the flange with the living hinge into the brackets, snapping them into the notched feature built into the eXapath conduit, and then nailing or screwing the final assembly into place using the receptacle at the front of the mounting bracket.

Wiring: Line vs Low

Technology

Why do we install line-voltage and low-voltage wires permanently?

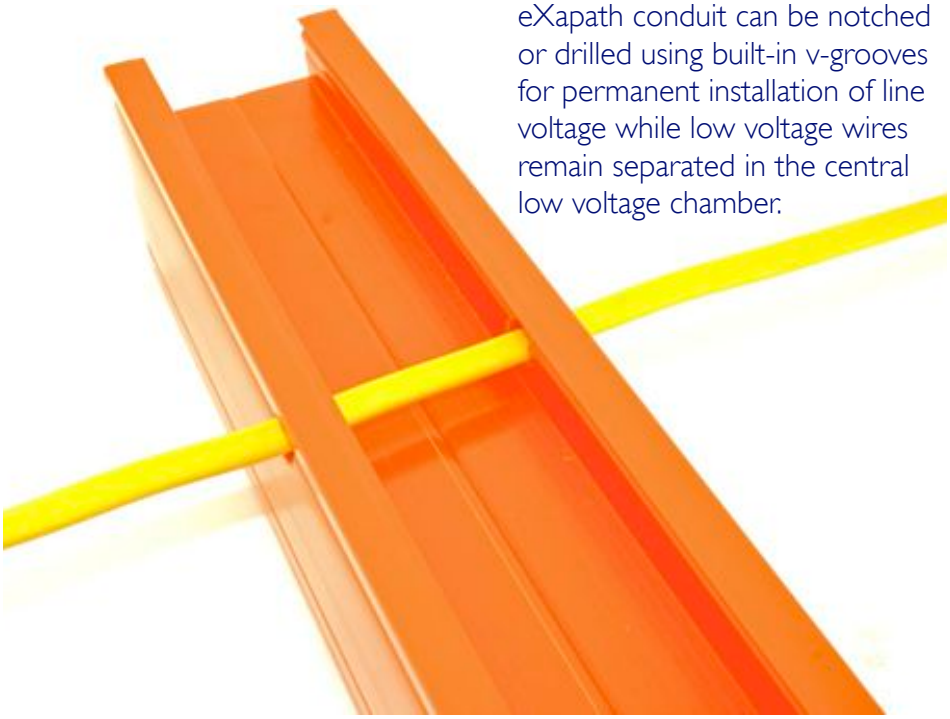
Line voltage

The technology behind line voltage wires (electric power) change very little over time. Therefore it's suitable to install them permanently within the walls.

Low voltage

Consumer electronics and the wires that support them change often, well within the life expectancy of the home. For this reason it's critically important to provide a means to move, add or upgrade wires within the structure of the home.

Preparing the structure for energy conservation through improved insulation is crucial...including the ability to keep pace with technology is equally important.



eXapath conduit can be notched or drilled using built-in v-grooves for permanent installation of line voltage while low voltage wires remain separated in the central low voltage chamber.

eXapath pathway systems enhance the value of a home, now and in the future

eXapath conduits allow the building contractor and the homeowner to delay the installation (and associated investment) of low voltage communication cabling until the requirements for audio, data/voice communications, CCTV, security and alarm systems arise. This is especially beneficial because determining where the exact location of specific outlets and connections for these applications need to be located can be very difficult to envision prior to moving into the home. The homeowner usually needs to optimize the placement of communications and entertainment systems after the furniture is properly situated. Cable material costs and the expense of cabling installation have traditionally been incurred during primary construction by permanently routing and stapling cables in place. This ensures that the cables can never be moved, upgraded or supplemented. Much of the permanently installed low voltage cabling is underutilized, suggesting that traditional methods over-engineer, add cost and lead to consumption of more scarce resources than practical. eXapath resolves this by minimizing cable consumption, providing flexibility to determine when, where, how and which cables are necessary.

Technologies such as Internet, HDTV, home automation, IP cameras, and security sensors will continually improve. With the advent of Fiber To The Home (FTTH) supplying significant bandwidth, the ability to interconnect to specialized networking devices inside a home will become more important for homeowners worldwide. In the US alone, FTTH deployments have passed more than

thirteen million homes as of 2008[3] with active FTTH marketing to over 12 million of those homes.[4] These devices must be capable of being networked to take full advantage of the improvements in advanced microprocessors and consumer electronics. Pre-installed cabling pathways provide the opportunity to reconfigure as cable requirements change with time. A home built with the flexibility for cabling reconfiguration today is likely to be more attractive to new buyers and may increase its future resale value. The following URL connects to a video that provides perspective on the future that may be of interest. The Exaflood: http://www.youtube.com/watch?v=wVnH5D-lWrA

Benefits

The one thing we know for sure is that consumer electronics will change rapidly.

Separation built-in

Running line and low voltage wires in proximity and parallel is undesirable as performance sapping cross-talk can occur.

Crossing at 90 degrees is preferred

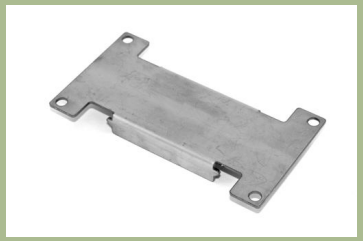
The eXapath system is designed to minimize cross-talk by ensuring that line voltage and low voltage cables remain separate and are perpendicular when close to each other. This minimizes cross-talk and supports best performance.

Moving, adding or upgrading is easy

eXapath leaves a readily accessible, high volume pathway to simplify moves, adds and upgrades.

Nail plates provided

Protection for line-voltage wires is important. The eXapath system provides steel nail plates that snap securely in place. Simple and easy.



Summary:

Homepath Products, LLC proposes a new cabling/utility pathway system that integrates seamlessly with traditional home construction practices and requires commonly available tools. This system accommodates for rapid changes in consumer electronics benefiting contractors and homeowners with flexibility and value for low voltage cabling upgrades, before and after drywall is installed.

Preparing homes with eXapath cabling pathways during home construction:

- Adds significant utility, flexibility, and long term value for the homeowner.
- Is a small expense relative to the cost of home construction itself and may be offset by reducing the amount of low voltage cable installed.
- Allows the homeowner to delay the investment in cabling until the cable requirements are clearly determined.
- Makes the home more attractive to future buyers by providing for simple, quick and inexpensive low voltage cabling technology upgrades.

The revolutionary eXapath system from Homepath Products, LLC supports sustainable design by consuming less cabling, minimizing installation time and expense, reducing short and long term waste stream and providing a long term economical cabling upgrade path for homeowners.

[1] Chicago Tribune, "Smart houses get slow grades", LEW SICHELMAN, United Feature Syndicate, March 18, 2007
[2] Chicago Tribune, "Smart houses get slow grades", LEW SICHELMAN, United Feature Syndicate, March 18, 2007
[3] Render Vanderslice Marketing, LLC, 2008, 222.RVALLC.com
[4] Render Vanderslice Marketing, LLC, 2008, 222.RVALLC.com

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