



NewHomeSource **XML data integration guide** **3.2**

NHlist schema 3.2

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Introduction

The NHlist schema has been developed by Builder Homesite, Inc. (BHI) and its partners as a generalized data representation of new-home properties for the homebuilding industry.

With continued development and industry support, it is expected that this schema may serve as a useful tool to builders – and that it may serve as a recommended method for exchanging any data relevant for the marketing and sale of new homes.

To that end, BHI supports this schema as the preferred data-feed format for its NewHomeSource (NHS) marketplace <<http://www.newhomesource.com>> and the network of NHS Partner Sites. NHlist is also the preferred method for builders to participate in other new-home marketing services operated by BHI on behalf of its partners and clients. (Contact your BHI representative for current information about these programs.)

This schema models three main types of data:

- (1) *Builders* – home-building companies or divisions, including brand names and website addresses.
- (2) *Subdivisions* – new-home communities and development phases, including sales office locations, services and amenities, etc.
- (3) *Home listings* – key selling-points, catalog images, and comparative information for build-to-order home plans and “spec” homes already under construction

The NHlist schema is a “quick start” XML model based upon a traditional real-estate listing, with extensions designed specifically for the new-home market. It is expected that most builders who currently use databases to export their property listings to real estate outlets (including newspaper, MLS and realty websites) should be able to export data in this format.

This guide annotates the NHlist schema in a plain-English format, and supplies real-world directions for its use. While care has been taken to ensure that the directions conform to the normative XSD template, in any cases of dispute the actual NHlist schema (a file beginning with “NHlist” and ending in “.xsd”) accompanying this guide will supercede this document.

Data feeds

Your frequency of updates should match your organization's sales activity – our intent is that data being listed accurately reflects current daily availability of properties (subdivisions, plans, and specs). For most builders, therefore, we recommend daily updates.

XML data file

The data “feed” file must include data for all of a builder's active subdivisions and associated new-home listings. If a corporation has multiple divisions, with or without their own brand names, which must be reported with their parent company, data for each division's listings must generally also be included in the same data file.

Data format. The data file must be formatted using XML markup which conforms to the schema presented in this guide. The eXtensible Markup Language, or XML¹, is a highly flexible, open standard for representing content of many types. Released in 1998 by the World Wide Web Consortium (W3C), XML is being used to represent and interchange data by many thousands of businesses, in hundreds of different industries worldwide.

Discussion of XML's significant benefits over other traditional data formats, such as CSV, is beyond the scope of this document; however, we encourage all builders to migrate to XML if they have yet to do so. Most common commercial databases are able to export data in XML syntax. Additional work is usually required in order for an XML file to conform to the particular XML Schema format documented here, but this is largely a one-time task.

XML Schema. BHI's preferred data syntax representation – and thus, the format used to describe NHlist – is XML Schema (XSD) notation², an XML-based standard for representing data elements and types (akin to a grammar). By referencing the XML Schema document, builders can *validate* their data prior to sending it to BHI. XSD validation is *required* for initial deployment, and strongly encouraged on a regular basis in order to minimize errors.

Note: To assist in deployment, the XSD schema presented here uses globally-unique element names so that they can be readily transformed into the older XML Document Type Definition (DTD) or XML Data Reduced (XDR) formats if needed. (Such transformations are not supported by BHI, however.)

FTP upload. Data files are typically transmitted to BHI using FTP-put; your representative will assign an account and password to your organization for this purpose.

¹ See <http://www.w3.org/XML/1999/XML-in-10-points> for a summary of XML features.

² The XML Schema standard is maintained at <http://www.w3.org/TR/xmlschema-1/>.

XML encoding requirements

Schema validation. Prior to submitting your first XML file to BHI for testing, you must validate it against the NHlist schema template (.xsd file) to ensure it is both *well-formed* and *syntactically valid*. BHI currently uses and recommends the **XML Spy**³ IDE to ensure your data file will not be rejected due to invalid XML.

Case-sensitive entity names. Please note that entity names are case-sensitive per the XML standard. Therefore, elements and attributes must be named with the exact same case as described in the NHlist schema or they may be rejected as invalid. (e.g. According to NHlist, <DefaultLeadsEmail> is valid, but <defaultleadsemail> is not.)

UTF-8 Encoding. In order to correctly interpret character glyphs, all data files must be encoded per the Unicode UTF-8 standard, and this must be specified by declaring this in the XML header at the top of your data file:

```
<?xml version="1.0" encoding="UTF-8" ?>
```

Windows-1252 workaround: Please note that if you encounter difficulties with validating your file due to the presence of Windows special characters, e.g. ½, ¼, ... you may be able to use an alternate encoding such as Windows-1252. *Note that this encoding is not formally supported by BHI and may cause character-display issues on the NHS network or for external marketing partners.* In this case, your XML header must be changed to read:

```
<?xml version="1.0" encoding="Windows-1252" ?>
```

XML special-character entities. Please note that the XML standard reserves special meaning for the following characters, and therefore any occurrences of these within your organization's data must be transformed within your XML feed:

Character	Common name	Transform to
<	less-than sign	<
>	greater-than sign	>
&	ampersand	&
"	quotation mark	"

Other data options

If your organization is unable to create feeds according to BHI's preferred XML format, alternate methods of submitting new-home listings are available:

1. **Manual entry via the NHS Extranet.** If your organization has limited amounts of listings to maintain, BHI offers a Web-based extranet application which allows builders to enter and maintain home information, and even to upload elevation and plan images. This application can be used with a Web browser connected to the Internet. (At the time of this writing, a Windows-based PC running Microsoft Internet Explorer 5.5 or greater is required to use the NHS Extranet.)
2. **Custom mapping.** If your organization maintains data in an electronic format, but is unable to interchange it according to the NHlist XML schema, BHI may be able to develop a custom integration for your business data. This approach usually requires a consulting arrangement.

Contact your BHI account representative for more information about these options.

³ Available from Altova GmbH at http://www.xmlspy.com/products_ide.html. Free 30-day trial available at <http://www.xmlspy.com/download.html> -- only the IDE component is needed to validate your XML files.

Data feed process

Initial setup and testing. Follow these steps to get your data feeds up and running:

1. Develop your XML data feed, using the requirements in the NHlist schema (XSD file) as described in this document.
2. Check your file for well-formedness and validity using an XML Schema-compliant application (BHI recommends the XML Spy IDE).
3. Contact your BHI representative (account manager) to obtain an FTP account.
4. BHI will then assign to your organization a username and password for the Test FTP server.
5. BHI will load your test feed into its Test system for review.
6. Once approved for display on the production site, a username and password will be issued for the Production FTP server.

Ongoing feeds. Once testing is complete and a production account has been assigned, your system should be set up to routinely upload XML data files to the Production FTP server:

1. **Create a valid XML file.** Builder generates an XML data file from their data sources. (Your XML data file must be checked to be well-formed and valid per the NHlist XSD.)
2. **Upload to BHI.** The XML file is uploaded to BHI's FTP server. Files should be uploaded prior to the daily cutoff time in order for them to be processed for display the following day.
3. **Error checking.** BHI's XML processing system parses the data file and checks it for syntax and business-logic validity. Invalid files are rejected, with notification sent to the builder's Error Reporting Address.
4. **BHI imports successful records.** BHI transfers the data in the XML file to the NewHomeSource databases.
5. **Data goes live.** Records successfully imported from the builder's XML file are then displayed on NewHomeSource.com and other NHS sites the following business day.

File-naming convention. The preferred filename syntax for your XML data files is:

OrganizationName_CorporateBuilderNumber_yyyymmdd.xml

where

OrganizationName is assigned to you by BHI during initial setup.

CorporateBuilderNumber matches the value you specified in the <CorporationBuilderNumber> element.

yyymmdd is the date the feed was produced or sent to BHI.

Update schedule. BHI accepts a maximum of one file per day, Monday-Friday. If there is a need to send a corrected file on the same day, please contact your account manager or designated technical contact to make sure this second file is uploaded correctly.

To obtain high-quality consumer leads, you should keep your sales data current, especially with regards to home availability and pricing. At a minimum, we recommend you send updated feeds at least once a week.

Error notification. BHI will generate error files in XML and deliver them to an address you specify. This address will be requested during testing. See Appendix B for a list of error messages.

Sending image files

Image formats and file extensions. To be processed for display, image files must be in GIF, JPEG, PNG or TIFF format and end in one of the following extensions:

Image file format	Allowed file extensions
GIF89a	.gif
PNG	.png
JPEG	.jpg or .jpeg
TIFF	.tif or .tiff

Reference types. Images may be transferred by one of two methods:

1. **URL: HTTP or FTP.** If the image reference is a URL, BHI will automatically pull the image from your server(s). This is commonly known as HTTP-get or FTP-get.
Note: Query-based image URLs – any URL containing “?”, e.g. <http://www.somebuilder.com/imageloader?planABC> – are not allowed.

HTTP-get (URL beginning with “http://”) is the preferred method for image transfer.
BHI usually schedules URL downloads to occur overnight during low-traffic periods, and attempts to download only new or changed files when possible.

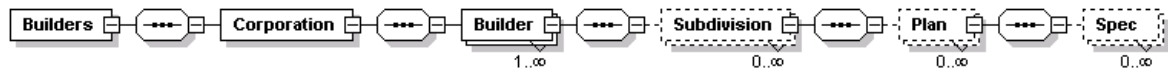
2. **Filename: FTP-put.** If the image reference is for a (local) filename only, you must upload the image file immediately following the data file. Files should be sent “flattened,” without folder structures (no relative paths).

For detailed information on image types and usage requirements, see the “Image Standards” section later in this document.

Schema overview

Element tree overview

Element hierarchy. In the NHlist schema, the most-common data objects are represented by a standard hierarchy:



(This is a reduced-structure diagram – it does not display all the elements in the schema.)

- **Builders** is the root element.
- **Corporation** is a parent or holding company (headquarters), beneath which all subsidiary builders are reported.
- **Builder** is a single builder or sales division. It may be repeated if the parent corporation lists homes under different divisions, e.g. by sales region or brand name.
- **Subdivision** is a “community” with homes offered for sale by a builder (division) at a particular location. Some subdivision elements may be shared among other builders, esp in master-planned communities. *Note: BuildOnYourLot (BOYL) offerings are defined as subdivisions; one is allowed per NHS market area.*
- **Plan** is a pre-construction, catalog representation of a floor plan, configured and priced at some base level for a particular Subdivision. Plan images and available options are defined here.
- **Spec** is a model, under-construction or fully completed home, which inherits features of its base Plan – but can also override them if necessary (esp. selling price, images). Specs may also include additional attributes such as a lot address and move-in date.

Plan-Spec hierarchy. *Important:* Note that Plans are defined beneath the Subdivision level (as child elements of a Subdivision) and that Specs are defined beneath the Plan level (as children of a Plan). Put another way:

1. *Plans are not global.* They must be defined within each active subdivision.
2. *Specs are not at the same level as plans.* This is contrary to many resale- and MLS-oriented listing products, but more accurately represents the homebuilding model. This allows Specs to inherit Plan data, and for Specs to be readily tied to their parent Plans (and vice-versa) for cross-selling opportunities.

Correct structure	Incorrect structure
<pre> ... <subdivision> <plan> ... </plan> <plan> ... </plan> </subdivision> <subdivision> <plan> ... </plan> </subdivision> ... </pre>	<pre> ... <plan> ... </plan> <plan> ... </plan> <subdivision> ... </subdivision> <subdivision> ... </subdivision> ... </pre>
<pre> ... <plan> <spec> ... </spec> <spec> ... </spec> </plan> ... </pre>	<pre> ... <plan> ... </plan> <spec> ... </spec> <plan> ... </plan> <spec> ... </spec> ... </pre>

If your organization uses a different structure, you may have to perform a data transformation in order for your listings to match this hierarchy.

Special entities and data types

See important notes regarding entity case and special characters under “XML encoding requirements,” above.

“Number” (ID) entities. (BuilderNumber, SubdivisionNumber, PlanNumber, SpecNumber.) These values should generally match ID’s in your source database, but can be of any value as long as they are unique within the scope of their parent element.

Important: Once sent, these values must persist across each data feed – BHI billing and consumer availability notifications are based upon these keys. (Put another way: IDs of your organization’s builders, subdivisions, plans, and specs should never be changed during their listing lifespan.)

“Count” elements. (SubsCount, PlanCount, SpecCount.) These optional elements are used for auditing incoming feeds to ensure the expected number of records is loaded – they should indicate the total number of child records of the relevant type to be expected.

Prices. Price is represented as a Decimal type with an optional fractional component of two digits:

Valid	Invalid
154990	\$154,990
238000	238K
98400.00	USD\$98.400.00

Boolean entities. For elements or attributes whose type is Boolean, set values to “1” for true and “0” for false. Other values (i.e. T/F, Y/N) are discouraged and may not be correctly interpreted. See note about null values below.

String entities. Generally speaking, the following rules apply to string types:

- **Use mixed case whenever possible.** Marketing names and descriptions should always be sent as mixed-case instances, e.g. <PlanName> should be sent as “Princeton”, not “PRINCETON”.
- **Do not use abbreviations.** Generally speaking, abbreviations are discouraged; e.g. send “The Lakes at Willow Grove,” not “Lakes @ Willow Grv”.
- **Do not mix data types in name fields.** Most fields are typed for terse display and should not be overridden with unnecessary data. For instance, Plan names should generally not include configuration data – e.g. send “The Beechwood” and set Plan Options instead of sending “The Beechwood 4.5 Bth Extra Garage” as a separate name.
- **Do not include disclaimers in place of data.** BHI products disclaim data for most purposes; if data is unknown or TBD, null values should be sent, *not* strings such as “n/a”, or “Contact sales office”.
- **Do not include presentation markup in description fields.** HTML entities, for instance, are not supported within descriptions -- send plain text only.

Null values. *Null values within elements are generally discouraged.* For Booleans in particular, nulls are generally interpreted as “value is false,” rather than “value is unknown,” which may not be accurate in some cases. (Future revisions of the schema may explicitly restrict nullable entities.)

Geocoordinates. Also known as “geocodes,” these are latitude and longitude coordinates important for dynamic mapping, distance-based searches, and automated routing. In NHlist, these must be expressed as decimal degrees with maximum 6-digit decimal precision.

- Latitude values should be of the form “30.336631”, and
- Longitude values should be of the form “-97.676646”. *Important:* Note that for all North American (Western Hemisphere) locations, *Longitude values are negative*.
- Degrees-minutes-seconds notation (e.g. 97° 40’ 35.166” W) is not acceptable.

“Upcoming” entities. A limited number of entities in this schema are included in anticipation of future NHS or BHI applications. *Values submitted for these elements may not be supported, displayed or otherwise used in current BHI products.*

In addition, a limited number of optional entities in the XSD schema template – not documented here – may be included for use in non-NHS applications only. Contact your BHI representative for additional information before using such entities.

Use of data. BHI cannot guarantee that all schema elements will be supported by its current or future applications. Therefore, the NHlist schema describes a data model, and not necessarily an application model. For specific details on how your data will be displayed within the NewHomeSource.com network, contact your BHI representative.

Schema detail

Builders element

Repeatable: No

This is the root element of an NHlist feed file.

Element	Notes
<Builders DateGenerated="" />	This is the root node of the feed; encloses all other elements. Required. DateGenerated attribute: <i>dateTime (CCYY-MM-DDThh:mm:ss format)</i> . Required. Timestamp when feed file was created; should uniquely distinguish this feed from subsequent feeds. Local time is acceptable (e.g. 2001-04-01T12:42:37).
<Corporation />	Required. See Corporation section below.

Corporation element

Repeatable: No

Contains items for reporting data to a single root-level entity ("corporation"), e.g. builder headquarters.

Corporation-Builder hierarchy. BHI requires a two-level hierarchy for listing and reporting. Your feed must contain a single <Corporation> node, and one <Builder> node for each division under which homes are to be listed.

Element	Notes
<CorporateBuilderNumber/>	<i>String, up to 30 chars. Required.</i> A unique ID for the parent company; must not be duplicated within BuilderNumber values (see Builder, below).
<CorporateState />	<i>String, 2 chars. Required.</i> Abbreviation of state in which corporate (parent) is incorporated, or where headquarters is located.
<CorporateName />	<i>String, up to 40 chars. Required.</i> Name of corporation.
<CorporateReportingEmail />	<i>String, up to 100 chars. Optional.</i> Email address to which <i>copies</i> of leads will be sent, for all lower-level builders, markets, and subdivisions. Important: Must not be the same email address as any lower-level recipient, to avoid conflict with the primary lead "owner" (recipient).
<Builder />	Repeatable; minimum 1 expected. Required. See Builder section below.

Builder (Division) element

Repeatable: Yes

Builder subsidiaries (divisions) are defined using these elements.

*** Manual-setup elements.** Note that some entities below, marked with an asterisk (*), are subject to one-time manual setup, QA and approval workflow. If values for these entities are changed in subsequent feeds, the NHS platform may not reflect the changes. Contact your BHI representative if these items have changed since the division was first listed.

Element	Notes
<Builder HomestoreID="" />	<Builder> is the parent element for all other elements in this section, below. HomestoreID attribute: <i>String. Optional.</i> Required only for builders who are using BHI data syndication to forward listings data to Homebuilder.com.
<BuilderNumber /> *	<i>String, up to 30 chars. Required.</i> Unique ID among all builder's divisions.
<BrandName /> *	<i>String, up to 30 chars. Required.</i> Marketing name or brand displayed to consumers ("Happy Hammer Homes"). Do not include suffixes such as "Corp.", "Corporation", "Inc."
<BrandLogo_Med ReferenceType="URL" /> *	<i>URL, up to 255 chars. Optional.</i> Medium logo image for brand. See Image Standards for details. ReferenceType attribute: fixed, "URL" only.
<BrandLogo_Sm ReferenceType="URL" /> *	<i>URL, up to 255 chars. Optional.</i> Small logo image for brand. See Image Standards for details. ReferenceType attribute: fixed, "URL" only.
<ReportingName /> *	<i>String, up to 75 chars. Required.</i> Unique builder/division name used for reporting, i.e. regional name ("Happy Hammer Homes – Northeast"). Not displayed to consumers.
<DefaultLeadsEmail LeadsPerMessage="" />	<i>String, up to 100 chars. Required.</i> Builder-level default address to which leads should be sent, if no other recipient is specified. LeadsPerMessage attribute: <i>Optional.</i> <ul style="list-style-type: none"> - All (default: combine all new leads into a single email message) - 1 (send a separate message for each lead record)
<BuilderWebsite />	<i>URL, up to 255 chars. Optional.</i> Link to builder/division homepage.
<Subdivision Status="" />	<i>Optional element. Repeatable for unique SubdivisionNumbers.</i> See Subdivision section below.

Element	Notes
<SubsCount />	<i>Integer. Optional.</i> Total number of Subdivision elements for this Builder. Used by BHI to verify successful import.

Subdivision element

Repeatable: Yes

Subdivisions (builder-communities) are defined using this structure.

For familiarity to consumers, BHI groups builders together if they build within the same Community; therefore some non-builder-specific information displayed to consumers may be shared with other builders.

Build on Your Lot. This element can be set to market a “build on your lot” (BOYL) offering within a certain market area. If possible, plans should also be attached to suggest home styles and approximate pricing, but this is not required. Note that only one BOYL listing per builder (division) can be listed per NHS Market Area. The name of the BOYL subdivision is marketed as “Build on Your Lot”.

Subdivision Status. This optional attribute allows builders to indicate to consumers that their subdivision is in a particular marketing “status”:

Active (or none)	Subdivision is open and sales office is handling home sales normally. <i>This is the default subdivision status.</i>
GrandOpening	Subdivision was just recently opened for full-time sales. Subdivision will be listed on NHS with a “Grand opening” tag. <i>Builder is expected to remove this status within 90 days (subdivision is considered Active by that time).</i>
Closeout	Subdivision is nearly complete, e.g. sales model or last few lots remain. Subdivision will be listed on NHS with a “Closeout” tag. <i>Once set, Closeout status should remain until subdivision is sold out (removed from feed).</i>
ComingSoon	Subdivision is in pre-sale state – it may be marketed without active home listings while sales office is being established, or plans are being prepared for later sale. <i>ComingSoon is a special case:</i> Must specify the estimated price range of homes to be sold or the subdivision will be rejected (price is required for consumer searches). Can use one of two methods: <ol style="list-style-type: none"> (1) set the PriceLow="" and PriceHigh="" attributes (2) if active plan/spec listings are attached to the subdivision, BHI will calculate price range from the plan records instead (this overrides method 1).

*** Manual-setup elements.** Note that some entities below, marked with an asterisk (*), are subject to one-time manual setup, QA and approval workflow. If values for these entities are changed in subsequent feeds, the NHS platform may not reflect the changes. Contact your BHI representative if these items have changed since the community was first listed.

Element	Notes
<Subdivision Status="" ShareWithRealtors="" PriceLow="" PriceHigh="" SqftLow="" SqftHigh="" />	<p><Subdivision> is the parent element for all other elements in this section, below.</p> <p>Status attribute: <i>String. Optional.</i> Indicates current “marketing status” of the subdivision (see note above). Supported values:</p> <ul style="list-style-type: none"> - Active (default) - ComingSoon - GrandOpening - Closeout <p>ShareWithRealtors attribute: <i>Boolean. Optional.</i> Set =1 to indicate that the subdivision is available to real-estate agents. Used for Homebuilder.com export (mapped to HB’s RealtorPart attribute).</p> <p>PriceLow, PriceHigh attributes: <i>Decimal. Required for ComingSoon (see note above), optional otherwise.</i> Price range for homes in this subdivision (if plans exist, these values will be overridden).</p> <p>SqftLow, SqftHigh attributes: <i>Integer. Optional.</i> Size range for homes in this subdivision (if plans exist, these values will be overridden).</p>
<SubdivisionNumber /> *	<p><i>String, up to 30 chars. Required.</i></p> <p>Unique ID among all of this builder's subdivisions.</p>
<SubdivisionName /> *	<p><i>String, up to 60 chars. Required.</i></p> <p>Marketing name for this subdivision. Must be at the smallest local level, e.g. if subdivision is “The Arbors at Sparkle Creek”, set <SubdivisionName> to “The Arbors” (or “Arbors”) and set <SubParentName>, below, to “Sparkle Creek”.</p> <p>(Notes: May be overridden by BHI community definitions. Ignored for BuildOnYourLot subdivisions.)</p>
<SubParentName /> *	<p><i>String, up to 50 chars. Optional.</i></p> <p>Name of a parent subdivision, e.g. master-planned community.</p> <p>(Notes: May be overridden by BHI community definitions. Ignored for BOYL subdivisions: defaults to “Build on Your Lot”.)</p>
<SubLeadsEmail />	<p><i>String, up to 50 chars. Optional.</i></p> <p>Email address (e.g. local sales agent) to which leads for this community should be sent. If not specified, leads will go to builder default.</p> <p>LeadsPerMessage attribute: <i>Optional.</i></p> <ul style="list-style-type: none"> - All (default: combine all new leads into a single email message) - 1 (send a separate message for each lead record)

Element	Notes
<BuildOnYourLot /> *	<i>Boolean. Optional.</i> Special use: Set =1 only if this “subdivision” represents a BuildOnYourLot (BOYL) sales offering in a certain market area (derived by ZIP code). BOYL is typically not located within any specific development community.
<CommunityStyle />	<i>Enumerated string; element can be repeated for multiple unique values. Optional.</i> Searchable community “lifestyle” attributes. Supported values include: <ul style="list-style-type: none">- MasterPlanned- Gated- Adult- CondoOnly
<SalesOffice>	<i>Parent element. Required.</i>
<Agent /> <Address OutOfCommunity="" /> <Street1 /> <Street2 /> <County /> <City /> <State /> <ZIP /> <Country /> <Geocode> <Latitude /> <Longitude /> </Geocode>	<i>String, up to 50 chars. Optional.</i> “Firstname Lastname” format; no titles (Mr Ms). Up to three can be sent for display. Sales office (model) address. Required. 1. Should be a physical, not a mailing, address. 2. Should be located inside community. OutOfCommunity attribute: Required. If office is outside of community, set =1 and populate SubAddress, below (affects geolocation maps and routing). <i>String, up to 100 chars. Recommended.</i> Should be in blocknumber-streetname-street type format, e.g. “12490 Richland Hills Trail” <i>String, up to 100 chars. Optional.</i> <i>String, up to 20 chars. Optional.</i> Note: Not used at this time. <i>String, up to 40 chars. Required.</i> Note: City name may be overridden by BHI market definitions (based on ZIP). <i>String, 2 chars. Required.</i> Use 2-digit USPS abbreviations only. Note: State may be overridden by BHI (based on ZIP). <i>String, up to 10 chars. Required.</i> 5- or 9-digit US postal code (only first 5 digits will be used). <i>String, up to 3 chars. Optional.</i> Fixed default=“USA”. No other values supported at this time. <i>Decimal. Optional.</i> Used to assist automated routing. Geolocation coordinates of the sales office, in decimal degrees, e.g. <Latitude>30.336631</Latitude>, <Longitude>-97.676646</Longitude> Note that all northern hemisphere latitudes are positive, and western hemisphere longitudes are negative.

Element	Notes
</Address> <Phone> <AreaCode /> <Prefix /> <Suffix /> <Extension /> </Phone> <Fax> <F_AreaCode /> <F_Prefix /> <F_Suffix /> </Fax> <Email /> <Hours /> </SalesOffice>	<p><i>Optional.</i> One phone may be displayed per office. AreaCode: <i>String, 3 digits.</i> Prefix: <i>String, 3 digits.</i> Suffix: <i>String, 4 digits.</i> Extension: Up to 7 characters, e.g. "1011" – do not include "Ext.:" or "x" prefix.</p> <p><i>Optional.</i> Sales office fax. Note: Not displayed on NewHomeSource.com.</p> <p><i>String, up to 50 chars. Recommended.</i> One email address may be sent per office, for consumer display & communication purposes – value of this element is not used by BHI for distributing leads.</p> <p><i>String, up to 100 chars. Recommended.</i> Hours sales office is open. BHI preferred style: (a) include all days of week starting with Monday (indicate closed days, if any); (b) use abbreviations without periods. e.g.: "Mon-Fri 9am-6pm; Sat 9am-12pm; Closed Sun"</p>
<SubAddress /> <SubStreet1 /> <SubStreet2 /> <SubCounty /> <SubCity /> <SubState /> <SubZIP /> <SubCountry />	<p><i>Optional.</i> Alternate address used for subdivision's geolocation, if sales office is located outside the area where the home is to be built. (Ignored if OutOfCommunity<>1.)</p> <p><i>String, up to 100 chars. Recommended.</i> Should be in blocknumber-streetname-street type format, e.g. "12490 Richland Hills Trail". Should be a physical, not mailing, address.</p> <p><i>String, up to 100 chars. Optional.</i></p> <p><i>String, up to 20 chars. Optional.</i> Not used at this time.</p> <p><i>String, up to 40 chars. Required.</i> Note: City name may be overridden by BHI market definitions (based on ZIP).</p> <p><i>String, 2 chars. Required.</i> Use 2-digit USPS abbreviations only. Note: State may be overridden by BHI (based on ZIP).</p> <p><i>String, up to 10 chars. Required.</i> 5- or 9-digit US postal code (only first 5 digits will be used).</p> <p><i>String, up to 3 chars. Optional.</i> Fixed default="USA". No other values supported at this time.</p>

Element	Notes
<code><SubGeocode></code> <code> <SubLatitude /></code> <code> <SubLongitude /></code> <code></SubGeocode></code> <code></SubAddress></code>	<i>Decimal. Optional.</i> Used for automated routing. Geolocation coordinates of the subdivision (esp. main entrance), in decimal degrees, e.g. <code><Latitude>30.336631</Latitude></code> , <code><Longitude>-97.676646</Longitude></code>
<code><DrivingDirections /></code>	<i>String, up to 1000 chars. Optional.</i> Directions to this subdivision or sales office. (Note: May be displayed alongside automated driving directions.)
<code><Schools></code> <code> <DistrictName LEAID="" /></code> <code> <Elementary NCESID="" /></code> <code> <Middle NCESID="" /></code> <code> <High NCESID="" /></code> <code></Schools></code>	<i>Optional element.</i> <i>Four strings, each up to 40 chars. Optional.</i> LEAID: 7-character string. Recommended.* NCESID: 12-character string. Recommended.* School district and public schools serving the community. <code><Elementary></code> , <code><Middle></code> , <code><High></code> <i>may be repeated</i> if multiple schools serve the community. For multiple districts, repeat the <code><Schools></code> element. *Important: NCES ID's (LEAID, NCESID) should be populated for accurate import. ⁴ If IDs are not given, BHI will attempt to match string value to NCES school records by name – string mismatches will be rejected.
<code><SubAmenity Type="" /></code>	<i>Boolean. Optional. Repeatable for unique Type attribute values. Value of element is 1 or 0.</i> Physical features available within this community. (Note: May be overridden by BHI community definitions.) Type attribute: Required. Supported values: <ul style="list-style-type: none"> - Pool - Playground - GolfCourse - Tennis - Soccer - Volleyball - Basketball - Baseball - Views - Lake - Pond - Marina - Beach - WaterfrontLots - Park - Trails - Greenbelt - Clubhouse - CommunityCenter

⁴ Obtain NCES district and school IDs from <http://nces.ed.gov/ccdweb/school/index.asp> (database files at <http://nces.ed.gov/ccd/address.html>). These are maintained by the U.S. Department of Education.

Element	Notes
<p><Service Type="" ></p> <p><ServiceName /></p> <p></Service></p>	<p><i>Optional element. Repeatable for unique Type attribute values.</i></p> <p>A standard service within this community; should generally be “included” or required with homeownership – do not include services which are optional. (Note: May be overridden by BHI community definitions.)</p> <p>Type attribute: Required. Supported values:</p> <ul style="list-style-type: none"> - HOA [<i>homeowners’ association</i>] - GroundsCare - Security - Maintenance - MedicalCare - Shopping <p><i>String, up to 50 chars. Recommended.*</i></p> <p>Name of the service, e.g. “Sparkle Hills Neighborhood Association”.</p> <p>*Note: Services which do not specify a ServiceName may not be displayed.</p>
<p><Utility Type="" ></p> <p><UtilityName /></p> <p><UtilityPhone></p> <p> <Util_AreaCode /></p> <p> <Util_Prefix /></p> <p> <Util_Suffix /></p> <p> <Util_Extension /></p> <p></UtilityPhone></p> <p></Utility></p>	<p><i>Optional element. Repeatable for unique Type attribute values.</i></p> <p>A local utility (usu. serving many subdivisions) which supplies a universal home service.</p> <p>Type attribute supported values:</p> <ul style="list-style-type: none"> - Electric - Gas - Telephone - WaterWastewater <p><i>String, up to 50 chars. Required.</i></p> <p>Name of the utility, e.g. “West Atlantic Electric & Gas”.</p> <p><i>Optional.</i></p> <p>See <Phone />.</p>
<p><SubDescription /></p>	<p><i>String, up to 2000 chars.</i></p> <p>Setup: Description of this subdivision. (Note: May be edited or overridden by BHI community definitions.)</p>
<p><SubImage</p> <p> SequencePosition=""</p> <p> Title=""</p> <p> Caption=""</p> <p> ReferenceType="" /></p>	<p><i>Optional. Repeatable.</i></p> <p>Subdivision photograph (aerial view, area amenities, etc.).</p> <p>See <PlanImages>, below, for attribute definitions.</p>
<p><SubWebsite /></p>	<p><i>URL, up to 255 chars. Optional.</i></p> <p>Link to local sales info. Note: used only for BOYL-program subdivisions at this time.</p>

Element	Notes
<LotsTotal />	<i>Integer. Optional.</i> Total number of lots in community, sold or unsold. (Used for Homebuilder.com export; not currently used by NHS.)
<LotsAvailable />	<i>Integer. Optional.</i> Total number of <i>unsold</i> lots currently available for sale in this subdivision. (Used for Homebuilder.com export; not currently used by NHS.)
<Promotion> <PromoHeadline /> <PromoDescription /> <PromoURL /> </Promotion>	<i>Optional element. Not repeatable.</i> Current promotion (1 only) offered on homes in this subdivision. Used especially for time-sensitive promotions; promptly remove from feed when promotion expires. <i>String, up to 100 chars. Required.</i> Short headline for the promotion, e.g. "Free porch extension and patio furniture" <i>String, up to 250 chars. Required.</i> Extended description for the promotion. Text should include promo expiry date, if any, e.g. "... now through June 30th." <i>URL, up to 255 chars. Optional.</i> Link to website page with further promotion details, conditions, etc.
<Plan Type="" />	<i>Optional. Repeatable for unique PlanNumbers.</i> See Plan section below.
<PlanCount />	<i>Integer. Optional.</i> Total number of Plan elements in this Subdivision. Used by BHI to verify successful import.

Plan element

Repeatable: Yes

Element	Notes
<Plan Type="" />	<p><Plan> is the parent element for all other elements in this section, below.</p> <p>Type attribute: <i>String, up to 40 chars.</i></p> <p>Required. Searchable indicator to differentiate SF and MF homes. Supported values:</p> <ul style="list-style-type: none"> - SingleFamily (default): single-family residential home. - MultiFamily: condo/townhome plan.
<PlanNumber />	<p><i>String, up to 30 chars. Required.</i></p> <p>Unique ID among plans for this subdivision.</p>
<PlanName />	<p><i>String, up to 50 chars. Required.</i></p> <p>Marketing name for plan, to be displayed to consumers.</p>
<PlanNotAvailable />	<p><i>Boolean. Optional.</i></p> <p>Special use: Set =1 if this Plan should not be displayed to consumers as an available listing; only its Specs are to be displayed as available. Useful inside any communities where all homes (esp. multi-family condos) are sold as spec only.</p>
<PlanTypeName />	<p><i>String, up to 40 chars. Optional.</i></p> <p>Used to display a marketing term for home's style to consumers. Supported values:</p> <ul style="list-style-type: none"> - Single Family - Condominium - Townhome - Townhouse - Carriage House - Garden Home <p>Note: Not currently displayed on NewHomeSource.com (upcoming).</p>
<BasePrice />	<p><i>Decimal (currency). Required.</i></p> <p>Base price for the plan in this subdivision.</p>
<BaseSqft />	<p><i>Integer. Recommended.</i></p> <p>Base finished-square-footage for this plan in this subdivision.</p>
<Stories />	<p><i>Decimal. Required.</i></p> <p>Number of finished, above-ground stories only (e.g. do not include Basement).</p> <p>Note: Fractional part is not loaded by BHI at this time.</p>
<Baths />	<p><i>Integer. Required.</i></p> <p>Number of full or ¾ bathrooms only. Note that half-baths are counted separately, below.</p>
<HalfBaths />	<p><i>Integer. Optional.</i></p> <p>Number of ½ (or ¼) bathrooms, e.g. a toilet/sink with no shower/tub facility.</p>

Element	Notes
<Bedrooms MasterBedLocation="" />	<i>Integer. Required.</i> Total number of bedrooms. MasterBedLocation attribute: Recommended. Set as "Down" if master is downstairs (ground floor), "Up" otherwise.
<Garage Entry="" />	<i>Decimal. Required.</i> Number of automobiles able to fit into garage. <i>Note:</i> Fractional part is not loaded by BHI at this time. Entry attribute: <i>Optional.</i> (Used for Homebuilder.com export; not currently used by NHS.) Values supported: <ul style="list-style-type: none">- Front- Side- Rear
<LivingAreas />	<i>Integer. Recommended.</i> Total number of living areas.
<LivingArea Type="" />	<i>Boolean. Optional. Repeatable for unique Type attribute values.</i> Set =1 if base plan includes one or more of these features (at least one room of that type). Type attribute: Required. Values supported: <ul style="list-style-type: none">- LivingRoom- DiningRoom- FamilyRoom- SunRoom- Study- Loft- Office- GameRoom- MediaRoom- GuestRoom- BonusRoom
<DiningAreas />	<i>Integer. Optional.</i> Total number of dining areas. (Used for Homebuilder.com export; not currently used by NHS.)
<Basement />	<i>Boolean. Optional.</i> Set =1 if base plan always includes a basement.
<PlanAmenity Type="" />	<i>Boolean. Optional. Repeatable for unique Type attribute values.</i> Standard design and construction features of this plan. Do not include optional features. Type attribute values supported: <ul style="list-style-type: none">- VaultedCeilings- Fireplaces- WalkInClosets
<MarketingHeadline />	<i>String, up to 100 chars. Recommended.</i> Short promotional description for this plan, e.g. "Luxury amenities and central media room", "2003 Home Design of the Year", etc.
<Description />	<i>String, up to 1500 chars. Optional.</i> Long text description of this plan's key features and overall strengths.

Element	Notes
<p><Option Type=""></p> <p><OptionName /></p> <p><OptionPrice /></p> <p><OptionSqft /></p> <p></Option></p>	<p><i>Optional element. Repeatable.</i> An additive floor-plan option (see Example following this section). Type attribute: Required. Supported values:</p> <ul style="list-style-type: none"> - Bedroom - Bath - Garage - LivingArea - Basement <p><i>String, up to 100 chars. Optional.</i> Display name for option, e.g. "Owner's Retreat"</p> <p><i>Decimal. Required.</i> Added cost for option. Set =0 if no-cost option.</p> <p><i>Integer. Recommended.</i> Finished square footage added by option. (Note: Ignored for Garage and Basement, as these are typically unfinished rooms.)</p>
<p><PlanImages></p> <p><ElevationImage SequencePosition="" Title="" Caption="" ReferenceType="" /></p> <p><FloorPlanImage SequencePosition="" Title="" Caption="" ReferenceType="" /></p> <p><InteriorImage SequencePosition="" Title="" Caption="" ReferenceType="" /></p> <p><VirtualTour /></p> <p><PlanViewer /></p> <p></PlanImages></p>	<p>Recommended. At least one Elevation and FloorPlanImage should be sent for each plan.</p> <p><i>Optional elements. Repeatable: Element value contains image reference; attributes specify descriptions (see Example following this section).</i> Value of element is a URL or filename, up to 255 chars.</p> <p>Attributes:</p> <p>SequencePosition: Integer. Required. Indicates order in which multiple images should be displayed {1,2,..}. Value should be unique within each set of images.</p> <p>Title: String, up to 50 chars. Optional. Text to display above image, e.g. "Elevation A", "First Floor".</p> <p>Caption: String, up to 100 chars. Optional. Text to display below image.</p> <p>ReferenceType: String. Required. Indicates whether element's value is a URL (for FTP/HTTP-get) or filename only (for FTP-put). Acceptable values:</p> <ul style="list-style-type: none"> - URL - Filename <p><i>URL, up to 255 chars. Optional.</i> Hosted panoramic photo(s).</p> <p><i>URL, up to 255 chars. Optional.</i> Hosted floorplan/elevation viewer for this plan. See Image Standards.</p>
<Spec Type="" />	<p><i>Optional. Repeatable for unique SpecNumbers.</i> See Spec section below.</p>
<SpecCount />	<p><i>Integer. Optional.</i> Total number of Spec listings for this Plan. Used by BHI to verify successful import.</p>

Example: Images. Multiple images may be referenced in the data file. The SequenceNumber attribute should be used to indicate precedence – this is especially important if multiple images are sent for elevations, for example. For example, a home with images for three elevations and two floors should be sent as:

```
<PlanImages>
  <ElevationImage SequencePosition="1" Title="Elevation A" Caption=""
ReferenceType="URL">
    http://www.companyAhomes.com/img/pl4201_elA.jpg
  </ElevationImage>
  <ElevationImage SequencePosition="2" Title="Elevation B" Caption=""
ReferenceType="URL">
    http://www.companyAhomes.com/img/pl4201_elB.jpg
  </ElevationImage>
  <ElevationImage SequencePosition="3" Title="Elevation C" Caption=""
ReferenceType="URL">
    http://www.companyAhomes.com/img/pl4201_elC.jpg
  </ElevationImage>
  <FloorPlanImage SequencePosition="1" Title="First Floor" Caption="" ReferenceType="URL">
    < http://www.companyAhomes.com/img/pl4201_floor1.gif
  </FloorPlanImage>
  <FloorPlanImage SequencePosition="2" Title="Second Floor" Caption=""
ReferenceType="URL">
    http://www.companyAhomes.com/img/pl4201_floor2.gif
  </FloorPlanImage>
</PlanImages>
```

See Image Standards for additional information regarding image types and formats.

Example: Options. Plan options are implicitly additive, and may be one of five types (Bathroom, Bedroom, Garage, Living Area, Basement). An <Option /> element instantiates one of the types. Price and square footage are passed as attributes (square footage is ignored for garage and basement, as these rooms do not contribute to finished square footage of the home). See Appendix A.

For instance, a plan with four options can be specified by three instances of the <Option> element:

```
<Option Type="Bath">
  <OptionName>Guest Bathroom</OptionName>
  <OptionPrice>1420.00</OptionPrice>
  <OptionSqft>80</OptionSqft>
</Option>
<Option Type="Bedroom">
  <OptionName>Owners' Retreat</OptionName>
  <OptionPrice>2470.00</OptionPrice>
  <OptionSqft>160</OptionSqft>
</Option>
<Option Type="Bedroom">
  <OptionName>Bedroom #5</OptionName>
  <OptionPrice>1800.00</OptionPrice>
  <OptionSqft>120</OptionSqft>
</Option>
<Option Type="Garage">
  <OptionPrice>4200.00</OptionPrice>
  <OptionSqft>80</OptionSqft>
</Option>
```

Spec element

Repeatable: Yes

Except for required fields below, a Spec listing generally inherits and displays data from its parent Plan record. (Any values assigned to optional elements below will override Plan data during display of the Spec listing.)

A Spec listing can also be used to market a Model Home (sales model): See the <SpecIsModel> element.

Element	Notes
<Spec Type="" />	<Spec> is the parent element for all other elements in this section, below. Type attribute: <i>String, up to 40 chars. Required.</i> See <Plan> for allowed values (should generally be same Type as parent Plan).
<SpecNumber />	<i>String, up to 50 chars. Required.</i> Unique listing ID among all builder's specs within this subdivision.
<SpecAddress> <SpecLot /> <SpecStreet1 /> <SpecStreet2 /> <SpecCounty /> <SpecCity /> <SpecState /> <SpecZIP /> <SpecCountry /> <SpecGeocode> <SpecLatitude /> <SpecLongitude /> </SpecGeocode> </SpecAddress>	An address is required for spec homes (used for geolocation). Spec's lot address is preferred; if unknown, insert address of subdivision. <i>String, up to 20 chars. Optional.</i> Lot number of the spec, e.g. "42", "N23". Do not include other text, e.g. "Lot: " prefix. (Used for Homebuilder.com export; not currently used by NHS.) <i>String, up to 100 chars. Recommended.</i> <i>String, up to 100 chars. Optional.</i> <i>String, up to 20 chars. Optional.</i> Not used at this time. <i>String, up to 40 chars. Required.</i> Note: City name may be overridden by BHI market definitions (based on ZIP). <i>String, 2 chars. Required.</i> Use 2-digit USPS abbreviations only. Note: State may be overridden by BHI (based on ZIP). <i>String, up to 10 chars. Required.</i> 5- or 9-digit US postal code (only first 5 digits will be used). <i>String, up to 3 chars. Optional.</i> "USA" only supported at this time. <i>Decimal. Optional.</i> Geolocation coordinates, in decimal degrees, e.g. <Latitude>30.336631</Latitude>, <Longitude>-97.676646</Longitude>.

Element	Notes
<p><SpecMoveInDate></p> <p><Month /></p> <p><Day /></p> <p></SpecMoveInDate></p>	<p>Recommended. Optional expected availability (completion) date; strongly encouraged for spec homes.</p> <p>Important: This element requires a choice: Send either <Month> or <Day> below, not both.</p> <p><i>Month (ccyy-mm format). Optional.</i> Date for searching. (If you use <Month>, do not also set <Day> for the same record.)</p> <p><i>Day (ccyy-mm-dd format). Optional.</i> Date for searching. Note that dd value may not be displayed to consumers. (If you use <Day>, do not also set <Month> for the same record.)</p>
<SpecIsModel />	<p>Boolean. Optional. Set =1 if this home is a Sales Model. Note: Implies home is not currently available for sale (price may not be displayed to consumers).</p>
<SpecPrice />	<p>Decimal (currency). Required. Selling price of this spec home, as-configured.</p>
<SpecSqft />	<p>Integer. Recommended. Finished square footage of this spec home.</p>
<SpecStories />	<p>Decimal. Optional. See <Plan>.</p>
<SpecUnitLevel />	<p>Integer. Optional. Condos: Vertical floor/level of unit (ground floor =1).</p>
<SpecLocation />	<p>String, up to 20 chars. Optional. Condos: Horizontal unit placement within a multi-unit building. Supported values:</p> <ul style="list-style-type: none"> - Corner - Interior - End
<SpecBaths />	<p>Integer. Optional. See <Plan>.</p>
<SpecHalfBaths />	<p>Integer. Optional. See <Plan>.</p>
<SpecBedrooms MasterBedLocation="" />	<p>Integer. Optional. See <Plan>.</p>
<SpecGarage Entry="" />	<p>Decimal. Optional. See <Plan>.</p>
<SpecLivingAreas />	<p>Integer. Optional. See <Plan>.</p>
<SpecLivingArea Type="" />	<p>Boolean. Optional. Repeatable for unique Type attribute values. See <Plan>.</p>
<SpecDiningAreas />	<p>Integer. Optional. See <Plan>.</p>
<SpecBasement />	<p>Boolean. Optional. See <Plan>.</p>
<SpecMarketingHeadline />	<p>String, up to 100 chars. Optional. Short marketing tag for this spec home.</p>
<SpecDescription />	<p>String, up to 1500 chars. Optional. Text description of this spec's features.</p>

Element	Notes
<p><SpecImages></p> <p> <SpecElevationImage SequencePosition="" Title="" Caption="" ReferenceType="" /></p> <p> <SpecFloorPlanImage SequencePosition="" Title="" Caption="" ReferenceType="" /></p> <p> <SpecInteriorImage SequencePosition="" Title="" Caption="" ReferenceType="" /></p> <p> <SpecVirtualTour /></p> <p></SpecImages></p>	<p>Recommended. If included, Spec images should be specific to the particular home under construction; other marketing images (e.g. artist rendering) should be at Plan level.</p> <p><i>Repeatable: Element value contains image reference; attributes specify descriptions.</i></p> <p>See <PlanImages> for usage.</p> <p>URL, up to 100 chars. Optional. See <Plan>.</p>

Usage example

Following is a sample XML data file containing examples of commonly-used elements. (Not all elements are used in this sample.)

```
<?xml version="1.0" encoding="UTF-8"?>
<Builders DateGenerated="2003-05-01T09:30:47-05:00">
  <Corporation>
    <CorporateBuilderNumber>0123</CorporateBuilderNumber>
    <CorporateState>AZ</CorporateState>
    <CorporateName>Almond-Bisque Homes Corp.</CorporateName>
    <CorporateReportingEmail>NHS_leads@bisquehomes.com</CorporateReportingEmail>
  </Corporation>
  <Builder>
    <BuilderNumber>AL01</BuilderNumber>
    <BrandName>Almond Homes</BrandName>
    <BrandLogo_Med
ReferenceType="URL">http://www.bisquehomes.com/almond/NHSlogoMed.gif</BrandLogo_Med>
    <BrandLogo_Sm
ReferenceType="URL">http://www.bisquehomes.com/almond/NHSlogoSm.gif</BrandLogo_Sm>
    <ReportingName>Almond Homes - West</ReportingName>
    <DefaultLeadsEmail LeadsPerMessage="All">robbie@almondhomes.com</DefaultLeadsEmail>
    <BuilderWebsite>http://www.almondhomes.com</BuilderWebsite>
  </Builder>
  <Subdivision>
    <SubdivisionNumber>ALB307</SubdivisionNumber>
    <SubdivisionName>Estates</SubdivisionName>
    <!-- parent name allows listings to be searched along with other "Aardvark Ranch" subdivisions -->
    <SubParentName>Aardvark Ranch</SubParentName>
    <SubLeadsEmail LeadsPerMessage="1">chloe@almondhomes.com</SubLeadsEmail>
    <BuildOnYourLot>0</BuildOnYourLot>
    <CommunityStyle>Adult</CommunityStyle>
    <CommunityStyle>Gated</CommunityStyle>
  </Subdivision>
  <SalesOffice>
    <Agent>Chloe Anderson</Agent>
    <Address OutOfCommunity="0">
      <Street1>7455 Roundabout Way</Street1>
      <City>Tucson</City>
      <State>AZ</State>
      <ZIP>85777</ZIP>
      <Geocode>
        <Latitude>32.2217</Latitude>
        <Longitude>-110.9259</Longitude>
      </Geocode>
    </Address>
    <Phone>
      <AreaCode>520</AreaCode>
      <Prefix>555</Prefix>
      <Suffix>1212</Suffix>
      <Extension>104</Extension>
    </Phone>
    <Email>chloe@almondhomes.com</Email>
    <Hours>Mon-Fri 8am-6pm; Sat 9am-4pm; Sun 12am-4pm.</Hours>
  </SalesOffice>
  <DrivingDirections>Take I-10 north to exit 254, 20mi north of I-19 split. Signs direct you to
Aardvark Ranch -- Estates is on Roundabout Way, 2nd on the right.</DrivingDirections>
  <Schools>
    <!-- NCES IDs preferred for schools; see documentation -->
    <DistrictName LEAID="0408800">Sunnyside</DistrictName>
    <Elementary NCESID="010021201612">
    <High NCESID="010021200743">Sunnyside HS</High>
  </Schools>
  <SubAmenity Type="Baseball">1</SubAmenity>
  <SubAmenity Type="Clubhouse">1</SubAmenity>
  <SubAmenity Type="GolfCourse">1</SubAmenity>
  <SubAmenity Type="Park">1</SubAmenity>
  <SubAmenity Type="Tennis">1</SubAmenity>
</Builders>
```

```

<SubAmenity Type="Views">1</SubAmenity>
<Service Type="HOA">
  <ServiceName>Sunnyside Community Association</ServiceName>
</Service>
<Utility Type="Electric">
  <UtilityName>Tucson Gas & Electric</UtilityName>
</Utility>
<SubDescription>A private resort community for today's active adult. Aardvark Ranch includes a
world-class golf course, open green belts and nature trails, parks, community pool and more.</SubDescription>
<SubImage SequencePosition="1" Title="Crenshaw Golf Course"
ReferenceType="URL">http://www.almondhomes.com/comms/AardvarkRanch/golfcourse.jpg</SubImage>
<Promotion>
  <PromoHeadline>Fast-move-in specials through August</PromoHeadline>
  <PromoDescription>Special savings on brand-new Almond Homes models ready for move in.
Offers valid only until August 30th -- hurry in for full details!</PromoDescription>
  <PromoURL>http://www.almondhomes.com/comms/AardvarkRanch/Aug-move-in-
promo.html</PromoURL>
</Promotion>
<Plan Type="SingleFamily">
  <PlanNumber>ABH1601</PlanNumber>
  <PlanName>Dotterel</PlanName>
  <BasePrice>349900.00</BasePrice>
  <BaseSqft>2750</BaseSqft>
  <Stories>1</Stories>
  <Baths>2</Baths>
  <HalfBaths>2</HalfBaths>
  <Bedrooms MasterBedLocation="Down">3</Bedrooms>
  <Garage>2</Garage>
  <Basement>1</Basement>
  <Description>Designed to be luxurious as well as functional, the Crystalview exudes elegant
style. Sunny skylights and a bodacious brunch nook add to the drama.</Description>
  <PlanImages>
    <ElevationImage SequencePosition="1" Title="Elevation A" Caption="Elevation A features
antiqued slate and gable accents."
ReferenceType="URL">http://www.almondhomes.com/plans/dotterel.jpg</ElevationImage>
    <VirtualTour>http://www.360buildertours.com/clients/ABH45/vt/dottere.html</VirtualTour>
  </PlanImages>
  <Spec Type="SingleFamily">
    <!-- Model Home example -->
    <SpecNumber>1601-7455M</SpecNumber>
    <SpecAddress>
      <SpecStreet1>7455 Roundabout Way</SpecStreet1>
      <SpecCity>Tucson</SpecCity>
      <SpecState>AZ</SpecState>
      <SpecZIP>85777</SpecZIP>
    </SpecAddress>
    <SpecsModel>1</SpecsModel>
    <SpecPrice>349900.00</SpecPrice>
  </Spec>
</Plan>
<Plan Type="SingleFamily">
  <PlanNumber>ABH2732</PlanNumber>
  <PlanName>Crystalview</PlanName>
  <BasePrice>364900.00</BasePrice>
  <BaseSqft>2900</BaseSqft>
  <Stories>1</Stories>
  <Baths>2</Baths>
  <HalfBaths>1</HalfBaths>
  <Bedrooms MasterBedLocation="Down">4</Bedrooms>
  <Garage>2</Garage>
  <LivingAreas>6</LivingAreas>
  <LivingArea Type="LivingRoom">1</LivingArea>
  <LivingArea Type="Study">1</LivingArea>
  <LivingArea Type="GameRoom">1</LivingArea>
  <Basement>0</Basement>
  <PlanAmenity Type="VaultedCeilings">1</PlanAmenity>
  <Description>Designed to be luxurious as well as functional, the Crystalview exudes elegant
style. Sunny skylights and a bodacious brunch nook add to the drama.</Description>
  <Option Type="Bedroom">

```

```

        <OptionName>Captain's Retreat</OptionName>
        <OptionPrice>8500.00</OptionPrice>
        <OptionSqft>180</OptionSqft>
    </Option>
    <PlanImages>
        <ElevationImage SequencePosition="1" Title="Elevation A" Caption="Antiqued slate and
gable accents." ReferenceType="URL">http://www.almondhomes.com/plans/crystal-extA.jpg</ElevationImage>
        <ElevationImage SequencePosition="2" Title="Elevation B" Caption="Hearthstone red
brick with capstone surrounds." ReferenceType="URL">http://www.almondhomes.com/plans/crystal-
extB.jpg</ElevationImage>
        <FloorPlanImage SequencePosition="1" Title="Ground Floor"
ReferenceType="URL">http://www.almondhomes.com/plans/crystal-FP.jpg</FloorPlanImage>
        <FloorPlanImage SequencePosition="2" Title="Options" Caption="Optional Captain's
Retreat extends from the master hallway and includes a patio exit."
ReferenceType="URL">http://www.almondhomes.com/plans/crystal-optionsFP.jpg</FloorPlanImage>
        <InteriorImage SequencePosition="1"
ReferenceType="URL">http://www.almondhomes.com/plans/crystal-int-A.jpg</InteriorImage>
        <VirtualTour>http://www.360buildertours.com/clients/ABH45/vt/crystal.html</VirtualTour>
        <PlanViewer>http://www.ebrochureco.com/ABH/crystalview.html</PlanViewer>
    </PlanImages>
    <Spec Type="SingleFamily">
        <SpecNumber>2732-12544M</SpecNumber>
        <SpecAddress>
            <SpecStreet1>12544 Mockingbird Way</SpecStreet1>
            <SpecCity>Tucson</SpecCity>
            <SpecState>AZ</SpecState>
            <SpecZIP>85777</SpecZIP>
        </SpecAddress>
        <SpecMoveInDate>
            <Month>2001-12</Month>
        </SpecMoveInDate>
        <SpecPrice>352900.00</SpecPrice>
        <SpecSqft>2900</SpecSqft>
        <SpecImages>
            <!-- spec has an under-construction photo -->
            <SpecElevationImage SequencePosition="1"
ReferenceType="URL">http://www.almondhomes.com/images/constructions/2732-
12544M.jpg</SpecElevationImage>
        </SpecImages>
    </Spec>
    <Spec Type="SingleFamily">
        <SpecNumber>2732-9920E</SpecNumber>
        <SpecAddress>
            <SpecStreet1>9920 Erlewine Lane</SpecStreet1>
            <SpecCity>Tucson</SpecCity>
            <SpecState>AZ</SpecState>
            <SpecZIP>85777</SpecZIP>
        </SpecAddress>
        <SpecMoveInDate>
            <Month>2001-12</Month>
        </SpecMoveInDate>
        <SpecPrice>384500.00</SpecPrice>
        <SpecSqft>3180</SpecSqft>
    </Spec>
    <SpecCount>2</SpecCount>
</Plan>
<PlanCount>1</PlanCount>
</Subdivision>
<SubsCount>1</SubsCount>
</Builder>
<Builder>
    <BuilderNumber>B2</BuilderNumber>
    <BrandName>Bisque Homes</BrandName>
    <BrandLogo_Med ReferenceType="URL">http://www.bisquehomes.com/bqh/NHS-bqh-
medium.gif</BrandLogo_Med>
    <BrandLogo_Sm ReferenceType="URL">http://www.bisquehomes.com/bqh/NHS-bqh-
sm.gif</BrandLogo_Sm>
    <ReportingName>Bisque Homes</ReportingName>
    <DefaultLeadsEmail LeadsPerMessage="All">robbie@bisquehomes.com</DefaultLeadsEmail>

```



```

<BuilderWebsite>http://www.bisquehomes.com</BuilderWebsite>
<!-- coming-soon subdivision example -->
<Subdivision Status="ComingSoon" PriceLow="90000" PriceHigh="145000">
  <SubdivisionNumber>BH278</SubdivisionNumber>
  <SubdivisionName>Harlequin Ridge</SubdivisionName>
  <BuildOnYourLot>0</BuildOnYourLot>
  <SalesOffice>
    <Agent>Robbie Roberts</Agent>
    <Address OutOfCommunity="1">
      <!-- centralized sales office, located away from the subdivision -->
      <Street1>123 Sales Office Row</Street1>
      <City>Humid</City>
      <State>FL</State>
      <ZIP>34660</ZIP>
      <Geocode>
        <Latitude>28.0679</Latitude>
        <Longitude>-82.7783</Longitude>
      </Geocode>
    </Address>
    <Phone>
      <AreaCode>727</AreaCode>
      <Prefix>555</Prefix>
      <Suffix>1212</Suffix>
    </Phone>
  </SalesOffice>
  <SubAddress>
    <!-- subdivision's actual location -->
    <SubStreet1>7500 W Route 376</SubStreet1>
    <SubCity>Ocala</SubCity>
    <SubState>FL</SubState>
    <SubZIP>34470</SubZIP>
    <SubGeocode>
      <SubLatitude>29.2239</SubLatitude>
      <SubLongitude>-82.0880</SubLongitude>
    </SubGeocode>
  </SubAddress>
  <SubDescription>Harlequin Ridge will offer the best in ready-to-occupy homes. Pre-sales info now
available!</SubDescription>
  <PlanCount>0</PlanCount>
</Subdivision>
<SubsCount>1</SubsCount>
</Builder>
<Builder>
  <BuilderNumber>B3</BuilderNumber>
  <BrandName>Bisque Homes</BrandName>
  <BrandLogo_Med ReferenceType="URL">http://www.bisquehomes.com/bqh/NHS-bqh-
medium.gif</BrandLogo_Med>
  <BrandLogo_Sm ReferenceType="URL">http://www.bisquehomes.com/bqh/NHS-bqh-
sm.gif</BrandLogo_Sm>
  <ReportingName>Bisque Homes - Custom Div</ReportingName>
  <DefaultLeadsEmail LeadsPerMessage="All">robbie@bisquehomes.com</DefaultLeadsEmail>
  <BuilderWebsite>http://www.bisquehomes.com</BuilderWebsite>
  <Subdivision>
    <SubdivisionNumber>BY12</SubdivisionNumber>
    <SubdivisionName>Ocala Build-On-Your-Lot</SubdivisionName>
    <SubLeadsEmail LeadsPerMessage="1">robbie-boyl@bisquehomes.com</SubLeadsEmail>
    <!-- This is a Build on Your Lot program -->
    <BuildOnYourLot>1</BuildOnYourLot>
    <SalesOffice>
      <Agent>Robbie Roberts</Agent>
      <Address OutOfCommunity="0">
        <Street1>123 Sales Office Row</Street1>
        <City>Humid</City>
        <State>FL</State>
        <ZIP>34660</ZIP>
        <Country>USA</Country>
        <Geocode>
          <Latitude>28.0679</Latitude>
          <Longitude>-82.7783</Longitude>
        </Geocode>
      </Address>
    </SalesOffice>
  </Subdivision>
</Builder>

```



```

        </Geocode>
    </Address>
    <Phone>
        <AreaCode>727</AreaCode>
        <Prefix>555</Prefix>
        <Suffix>1212</Suffix>
    </Phone>
    <Email>robbie@bisquehomes.com</Email>
    <Hours>Mon-Fri 8am-8pm; Sat-Sun 9am-4pm.</Hours>
</SalesOffice>
<SubDescription>Bisque Homes offers many unique starter plans, and will help you custom-build
your dream home. Lot locator service also available.</SubDescription>
<SubWebsite>http://www.bisquehomes.com/market/OCFL/boyol.html</SubWebsite>
<!-- BOYL website -->
    <PlanCount>0</PlanCount>
</Subdivision>
    <SubsCount>1</SubsCount>
</Builder>
</Corporation>
</Builders>

```

Image standards

BHI believes that a consistent, rich visual experience is vital to its portrayal of new-home products and for creating qualified consumer leads for its builder clients – listings with images create a multiple of qualified sales than those without.

Note: Builders are strongly encouraged to submit sample floorplan and elevation images during the setup process so that any possible image-processing issues may be identified prior to the first “production” data load.

Summary

Images must be referenced within the data file. Multiple elevation and floor plan images per home plan are encouraged – refer to the schema for sequencing.

Standard image types. The following image types may be sent.

1. **Brand logo.** “Medium” and “small” representations of your company’s logotype.
2. **Front Elevation.** Exterior drawing or photo of a home plan or model/spec under construction.
3. **Floor Plan.** Scaled drawing of layout of rooms, entrances, etc. for each floor of the home; may have items not-to-scale. Typically not a blueprint, but an artist-simplified version of same.

Multimedia tours. Multimedia “tours” are not hosted by BHI, but can be linked to external sites. One URL is allowed for each of the following types.

1. **Virtual tour.** “360-degree” panoramic images – possibly several to cover multiple angles of a single home, usually requiring a special viewer application.
2. **Plan viewer.** Interactive “e-brochure” application of vector-based floorplans, elevations, etc.

Image sizes. Images should generally be sent “large” – to display fully within a Web browser window approximately 500 pixels wide – but most any size can be accommodated. Preferred maximum image sizes and best proportions are:

Image type	Width	Height	Ratio
Elevation or interior	500 pixels	350 pixels	1 : 0.7
Floor plan	500 pixels (min)	600 pixels	1 : 1.2

As long as the original image does not exceed these dimensions, we will attempt to display them at “original size” to NHS consumers.

However, note that all images may be proportionally reduced (or enlarged) for use in BHI products. This is especially necessary for “thumbnail” images displayed during searches, but may also apply to “full-size” images which are larger than the dimensions above.

Image formats. Images must be submitted in one of these formats: GIF, JPEG, TIFF, or PNG. Each image file should not be larger than 500Kb in size.

For best image processing:

- send **drawing-type** (line illustration) images using the **GIF** or **PNG** format
- send **photorealistic** images (photos or full-color renderings) using the **JPEG** format

Warnings:

- don't send **placeholder images** which state "No photo available". These are explicitly not allowed, and *will be removed by BHI*.
- don't send **animated or multiple-frame images**, e.g. animated GIFs

Image text: titles and captions. The NHlist schema allows you to include Titles (short, standalone descriptions) and Captions (lengthy descriptions) for most types of images. We encourage builders to include titles and/or captions whenever possible, with these recommendations:

- don't send the **same string for both** Title and Caption; they are designed to appear simultaneously in some cases (Title takes precedence in other cases)
- if you use **only one string** to describe an image, use just the Title attribute if the string is short (under 50 characters); if it is longer, use just the Caption attribute
- always include enough **contextual information**, e.g. send "Elevation A", not just "A"
- don't include **unnecessary text** like "Image", e.g. send "Master Bedroom", not "Master Bedroom Image"
- don't **repeat other listing data** such as plan/subdivision names if they don't uniquely describe the image; e.g. don't send "Plan ABCD" to describe an Elevation image, send "Front Elevation" instead (the user will already know they're looking at detail for Plan ABCD)

Brand logo images

The brand logo is critical for representing the builder's identity. For display on websites, the logo must be rendered in GIF or JPEG format only. BHI prefers GIF images that are rendered on a transparent or white (#FFFFFF) background; animation is not allowed.

The logo should be rendered in two sizes, "medium" and "small". These dimensions are enforced:

Logo size	Width	Height	File size
Medium	200 pixels (max)	65 pixels (max)	5Kb (max)
Small	60 pixels (max)	30 pixels (max)	2Kb (max)

Contact your BHI representative if you require assistance producing proper logo images.

Elevation images

The front-elevation image is critical for representing real estate products, and all builders are strongly encouraged to have *at least one elevation image* for every home listing.

- For **plans**, BHI prefers an illustrated artist rendering or model photograph, in color if available.
- For **specs** (homes under construction, including models for sale), BHI prefers a photograph representing the actual home under construction, or a model with a similar exterior elevation. If submitted, this photo will replace the plan image above for the spec home listing.

Front elevation requirements. Elevation images submitted for a plan or spec home must be prepared according to the following guidelines:

- *Home should fill the active area.* Best feature(s) should be visible in the largest, central portion of the image area. (Consider cropping edges of very wide homes in order to highlight detail.)
- *No borders or diffuse edges.* Image should be continuous edge-to-edge photo, or have a continuous white background if it is a drawing.

- *No overprinting.* Elevation image must not have any overlaid elements such as logos or text (no overprinted copyright notices).
- *No animation.* Images must be static only.

Warning: Multiple-elevation composites are discouraged. At this time, the BHI marketplace promotes a single Primary elevation to display as the default image for a home. This elevation image will display as a thumbnail during searches and is also displayed when a consumer saves a home record for later use.

Therefore, “Composite” images displaying multiple-elevation options must not be sent as the Primary elevation image for a home. One elevation must be isolated as the Primary elevation and sent as the first image in the sequence.

Floor Plan images

Floor plan requirements. Floor plan images submitted for a plan or spec home must be prepared according to the following guidelines:

- *Text should be simplified, and large.* Text must be legible when scaled to a standard Web page width (approx 500 pixels wide).

Floor plan images should be keyed to the floor they represent. This can be done using the SequencePosition attribute in the schema.

Virtual Tour URL

A virtual tour is an interactive application (usu. in Flash or Java) for viewing “immersive” panoramas of photos, typically used to represent the interior or exterior of a new (model) home.

A virtual tour is identified by URL only⁵ -- a builder (or third-party provider) is responsible for hosting traffic to this type of media. Only one virtual tour URL per home is allowed.

Plan Viewer URL

A plan viewer, sometimes called an “e-brochure,” is an interactive application (usu. in Flash or Java) for viewing “rich vector” drawings of floor plans and/or elevations, usually allowing users to “select” standard plan options and visualize their effect on the plan drawing and/or elevation. It may also include functions for customized printing.

A plan viewer is identified by URL only⁶ -- a builder (or third-party provider) is responsible for hosting traffic to this type of media. Only one plan viewer URL is allowed per plan.

Copyright

⁵ At this time, BHI does not *host* virtual tours on its servers – however, we will provide a direct, windowed link to such tours if they are hosted by an acceptable third-party service provider. Note that a hosting service-level agreement should be in place to ensure near-100% uptime for consumers, who may be viewing your listings at any time. “Broken” image links are subject to removal.

⁶ See previous footnote.

Important: By submitting image references to BHI, builder assigns a reproduction right and, in so doing, affirms that it has sufficient ownership to transfer such copyright privilege.

All home images referenced in the data file, once downloaded, become property of BHI and may be used to represent the builder's product offering in BHI applications, including third-party listing partners.

Contact your BHI representative for additional information about preparing images.

Third-party listing syndication services

Builder Homesite maintains business relationships with a host of real-estate marketplaces which can broaden the reach of new home listings to a variety of audiences. By submitting your listings to NewHomeSource.com, you may be able to save on production costs for these channels.

If you are interested in having your NHS listings data syndicated to these or other partners, contact your BHI representative for more details. Please note that third-party marketing channels may charge additional listing fees.

HomeBuilder.com Export

Through a cooperative partnership with Homestore, Inc., BHI can syndicate builders' listing data to HomeBuilder.com. This is offered as an additional service for our builders who are using XML to prepare data for the NewHomeSource network.

Builders wishing to participate in this program should send regular XML data feeds to BHI according to the NHlist syntax outlined throughout this document.

Important: Note that the <Builder **HomestoreID**=""> attribute is optional in the NHlist XSD schema, but *is required for this service*. If it is missing, listings for that Builder (division) cannot be forwarded to HomeBuilder.com.

Images: URL only. Unlike NHS, Homestore does not support FTP upload of images; therefore, builders using HomeBuilder.com Export *must only use URL references* in their NHlist feed. Images with ReferenceType="Filename" will be not be sent to HomeBuilder.com.

Also, be aware that Homestore has more restrictive image rules than NHS: image files must generally be under 25K, and GIF or JPEG format only.

Excluded HomeBuilder.com elements. Please be aware that BHI cannot send data for these HomeBuilder.com entities.

- | | | |
|--------------|-------------------|-------------------------------|
| • LeadEmail2 | • Pager | • LotSizeID |
| • LeadEmail3 | • SubImageDate | • LotTypeID |
| • MLSArea | • SubCaption | • ArchitectureID |
| • MapUsed | • ContractPending | • LotInPrice |
| • MapPage | • GarageDetach | • CPDate |
| • MapGrid | • SplitPlan | • Cnote |
| • GasAvail | • Pool | • ImageType: Thumbnail |
| • UngrUtil | • RealtorListed | • ImageType: Property Profile |
| • ElectCo | • Block | • ImageDate |
| • Developer | • SlabDate | |

Other listing services

The NHS network can also syndicate your new home listings to other real estate websites including, at the time of writing:

- Many major newspapers around the United States
- Yahoo! Real Estate
- LivingChoices.com
- eBay Real Estate (auction properties, and non-auction listings)

Frequently Asked Questions

Q: Is the order and case of entities significant?

A: Yes. Per the XML Schema (XSD) standard, elements are required to be sent in the *order* outlined in the schema. Case for both element- and attribute-names is also significant.

Q: Must I include all elements specified in the schema?

A: No. You need only include those elements which are specified as *Required*. *Optional* elements can generally be added at a later date, when the data becomes available. Items specified as *Recommended* are optional, but strongly encouraged – if left blank, they may affect NHS search results and thereby cause lower lead-conversion for your listings.

In general, you should include all elements for which values are *known*. If values are unavailable or unknown, do not include the element.

Q: Do I need to include all attributes for a given element?

A: No. Only attributes which are indicated as *Required* must be included.

Q: Must I validate my XML files against the XSD schema file?

A: Yes. Your file will be rejected if it does not validate against the NHlist XML Schema file (XSD).

Before submitting your first file for testing, you must validate it against the most-recent NHlist XSD with an XML Schema-compliant validator. (BHI recommends Altova's XML Spy⁷ IDE, version 4.3 or newer, for this task. You may also use the MSXML parser, version 4 or newer.)

Once regular feeds are in production, routine XSD validation is strongly recommended in order to identify and correct errors before submitting your data. Contact your BHI representative for assistance with validation.

Q: Must I send builder/subdivision setup data within my XML instance file, or can it be entered/maintained manually?

A: Yes, you must include all available builder/subdivision data with every feed. Whenever your file is loaded, it will update all existing data associated with your listings (wherever allowed). It is generally *not* possible to send a "partial" feed and maintain the rest of your information manually (feed augmentation is not supported).

Q: How do I deactivate a subdivision's listings?

A: Remove its corresponding <Subdivision> node from your feed. Its associated plans and specs will be deactivated, and the subdivision will be flagged as deactivated.

Q: How do I suppress displaying Plans as "available" in a close-out subdivision?

A: If only Spec homes are available in the subdivision, set the <PlanNotAvailable> element to 1 (true) for all plans. The specs will continue to inherit Plan description information, but a Plan listing will no longer be displayed to consumers.

Q: What is the purpose of the "OutOfCommunity" attribute for a sales office Address? What should SubAddress be used for?

A: Some builders use a centralized, offsite sales office to service multiple subdivisions, and have no sales model or "trailer" physically located within the subdivision(s) offered for sale. If this is the case, set OutOfCommunity="1", then use the <SubAddress> element to provide a street address for the community (e.g. development address) so that the property can be plotted on a visual map.

In the most-common case, where a sales office does exist within the subdivision itself, use <Address> only, and set its attribute OutOfCommunity="0".

⁷ Available from <http://www.xmlspy.com>.

As of NHlist 2.0, this is also useful for BuildOnYourLot (BOYL) subdivisions: If the BOYL sales office is in a different market than the BOYL program itself, set <Address OutOfCommunity="1"> and then use <SubAddress> and set the <SubCity>, <SubState> and <SubZIP> to be within the market where the BOYL listing should be displayed.

Q: Which attributes are required for an elevation, floorplan or interior image?

A: You must populate the **SequencePosition** (1 .. n) and **ReferenceType** (URL, Filename) attributes. Title and Caption are optional. e.g. these are acceptable image references:

```
<ElevationImage SequencePosition="1" ReferenceType="URL">
  http://www.builder.com/images/ABC_elev1.gif</ElevationImage>
<ElevationImage SequencePosition="2" ReferenceType="URL">
  http://www.builder.com/images/ABC_elev2.gif</ElevationImage>
```

Q: I am referencing images as URLs. What happens if BHI cannot locate them?

A: You should regularly check your references to make sure they haven't changed – if they have, you should send the new location, or set up a redirect on your image server so that BHI can pull the updated file. Image references which cannot be resolved will be suppressed.

Q: I have different or additional enumerated values, e.g. for room types or subdivision amenities. Can I send these in my XML feed?

A: No. Values not defined within the schema will not be displayed by current BHI products, and may fail XML Schema validation as a result. Contact your BHI representative with information about your business model so that data suggestions can be reviewed for future revisions of the schema.

Q: I have different or additional attributes or elements which I would like to send. Can these be included in my XML feed?

A: No. Sending "extra" XML entities not specified within this schema will cause the feed to be rejected as invalid. Contact BHI with your suggestions for revising the schema.

Q: What are the most common errors?

A: In our experience, these are most likely to cause errors when BHI attempts to import records:

- Failure to validate against the NHlist XSD file (file is not valid per the XML schema).
- Duplicate BuilderNumber values among Builders (divisions).
- Duplicate SubdivisionNumber values among Subdivisions for a given Builder.
- Duplicate PlanNumber values among Plans in a Subdivision.
- Duplicate SpecNumber values among Specs in a Subdivision.
- Failure to provide Required elements and values.

Comments

This schema recommendation succeeds only if it helps homebuilders with their data management needs and ultimately enable them to reach new markets, construct and sell more homes – and increase their base of satisfied customers.

NHlist is routinely refined as the needs of the homebuilding market change – we welcome the input of our industry partners and encourage them to share their expertise as part of this process.

Please contact us with your comments:

support@builderhomesite.com

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Austin, TX 78754
(512) 371-3800

Change history

DATE	VERSION	NOTES
6/2003	3.2	<p>No required entities added. All changes are optional for users of the previous schema (2.6).</p> <ul style="list-style-type: none"> - Incremented version to 3.2 to keep in sync with NHS application platform. - Changed all square footage elements from Required to Recommended (square footage now optional). - Added Model Home support. Use Spec:SpecIsModel element to enable listing of model homes. - Added Spec:Promotion element to enable listing of subdivision promotions. - Added Option Type="Basement" to enable specifying an optional basement. - Added documentation for subdivision Hours element. - Added setup-only note (*) to some elements at Builder and Subdivision levels. - Deprecated Market element previously under Builder. OK to continue sending for now (still in XSD); may be removed in future revisions of schema. - Incorporated HomeBuilder.com Export elements/attributes into standard documentation. - Added Error messages section. - Updated image standards: optimal sizes updated. - Fixed bug in 2.6 XSD file: extraneous PlanType caused validation errors with MSXML4 (now removed).

10/2002 2.6

No required entities added. All of the 2.6 changes are optional for users of the previous schema (2.0).

- Incremented version to 2.6 to keep in sync with NHS application platform.
- Added subdivision **Status** attribute. Allowed values include ComingSoon, GrandOpening, Closeout.
- Added subdivision **PriceLow** and **PriceHigh** attributes. These are required when specifying a ComingSoon subdivision with no active plans.
- Added **MarketingHeadline** and **SpecMarketingHeadline**.
- Updated feed processing for **Schools**: NCES codes are recommended, but no longer required. BHI now attempts to validate school districts and schools *by name* if NCES codes are not supplied.
Important: School-name strings which cannot be validated against NCES names will be rejected.
- Changed **Garage** and **SpecGarage** from integer to decimal type to allow more records to pass XSD validation.
Important: At this time, BHI loads only the whole-number part. If a fractional-part exists, it will be truncated.
- Changed **Stories** and **SpecStories** from integer to decimal type. Same truncation rule for Garage applies.
- Added enumerations to plan **AmenitiesType**: Fireplaces, WalkInClosets.
- Added enumerations to plan **LivingAreaType**: MediaRoom, GuestRoom, BonusRoom.

Homebuilder.com export. Some elements and attributes have been added for exporting to Homebuilder.com – they are not currently supported within NHS applications, and are not covered in this document. Contact your BHI representative for additional information about this service.

- Added **HomestoreID** attribute to <Builder> (required for Homebuilder.com feeds).
- Added **ShareWithRealtors** attribute to <Subdivision>.
- Added Subdivision:<LotsAvailable> and <LotsTotal>.
- Added <DiningAreas> and <SpecDiningAreas>.
- Added **Entry** attribute to <Garage> and <SpecGarage>.

3/2002

2.0

Overall changes:

- In general, implemented automated processing for many elements which were manual-only Setup in 1.5.
- Feeds are now validated against the schema before processing; feeds which do not pass XML Schema validation will be rejected.
- Optional attributes are no longer required to be instanced with null values; these can now be safely omitted from the feed.
- Max-lengths expanded for descriptions and certain other elements.
- Added required **DateGenerated=""** attribute to root Builders element. Used for daily NHS operations, QA and history purposes.
- Added **Corporation** level, with support for corporate reporting of leads across all builders and subdivisions.

Builder level changes:

- Changed **ReportingName** and **DefaultLeadsEmail** from optional to required.
- Added **Market** element, with support for market-level leads.
- Added **BrandLogo_Med** and **BrandLogo_Sm** for setup of marketing logos. Important: If used, must be referred by URL only, and must be built to NHS spec (see Image Standards).
- Removed support for **BuilderParentNumber** (deprecated): use Corporation instead (fixed two-level hierarchy).

Subdivision level changes:

- Added **BuildOnYourLot** element to indicate if subdivision should be treated as a BOYL program instead.
- Changed **Street1** and **SubStreet1** from required to recommended.
- Added **SubImages**, for future NHS use.
- **Schools**: Clarified that U.S. Government NCES IDs are required for import of schools. (Used to ensure data uniformity, and enable advanced searches.)
- Added **SubWebsite**, required for BOYL.

Plan/Spec level changes:

- Changed **Garage** and **SpecGarage** from decimal to integer type (decimal not supported by BHI).
- Changed **SpecStreet1** from required to recommended.
- Removed **OptionPrice=""** attribute from images (deprecated).

8/2001

1.5

Global changes and clarifications:

- Version incremented to 1.5, to match upcoming version of BHI NewHomeSource product.
- Revised “Image Standards” section of documentation.
- **Important: Any attributes appearing within an instanced element are now required to exist.** For any element, all defined attributes (if any) *must* be given a value. (This is due to a BHI data-processing requirement and may be relaxed in the future.) Wherever previously “optional” attributes appear, they are nullable – so if data is unavailable or unknown, the workaround is to submit null values instead of omitting the attribute altogether.
- Added **EmailType** representation of Internet email-address syntax. Subdivision/Email now references this type (was xsd:string type).

Listing (plan/spec) changes:

- **Image attributes and nulls:** Per BHI global attribute-existence requirement (see above), changed all Image attributes to required-use. Therefore, **Title**, **Caption**, **OptionPrice** attributes are now required to exist for all image elements, in addition to previous SequencePosition and ReferenceType. As these are simple (unenumerated) attributes, they have been set to no type and therefore should accommodate nulls. If your XML toolset requires non-null values, you may send “ ” (space) for these values and they will be evaluated upon import.
- Changed Plan/PlanImages/PlanBrochure to **PlanViewer**.
- Changed Plan/Bedrooms’ and Spec/SpecBedrooms’ MasterBedDown attribute to **MasterBedLocation**. Supported values are now Up (for any location above the ground floor), Down (implies ground floor). Null expected if unknown.
- Plan’s Style attribute changed to Plan/**PlanTypeName** element; it is optional. (“Style” reserved for future use.)

Setup (builder/subdivision) element changes:

- Added enumerations to **SubAmenitiesType**: Park, Baseball, WaterfrontLots, CommunityCenter.
 - Added enumerations to **ServicesType**: MedicalCare, Shopping.
 - Added Subdivision/**Utility** element and related types.
 - Added Builder/**DefaultLeadEmail** and Subdivision/**SubLeadsEmail**.
 - Changed Subdivision/SubParentNumber to **SubParentName**. Now expects name of master community instead of number.
 - Changed Subdivision/CommunityType to **CommunityStyle** to reduce confusion with other –Type elements.
 - Changed Builders/BuilderName to **BrandName**.
 - Removed Subdivision/Schools' optional LEAID and NCESID attributes.
-

7/2001	1.1	<p>Several improvements made as a result of 1.0 preview feedback and upcoming-product design. Changes include:</p> <ul style="list-style-type: none"> - Schema now conforms to final W3C Recommendation for the XML Schema 1.0 standard (5/2/2001).- Optional geocode (lat, long) has been added to all Addresses, to aid GIS mapping. - A Subdivision Address has been added separately from the Sales Office, to better handle GIS routing in the case of centralized sales offices (if outside of community). - Subdivision Amenities (pool, tennis, etc.) are now a repeatable element, with an attribute to indicate type, instead of one element name for each type - Subdivision Services were moved to their own element, e.g. HOA, Security, etc. - Plan Type attribute was created to allow for single-family or multi-family (condo) plans - Living Area (study, loft, etc.) was created and defined as a repeatable element, with an attribute to indicate type. LivingAreas still holds the integer number of such areas for searching. - Options no longer require different element names per type (specify as an attribute). - Images no longer require different element names if they are sent as URL vs. filename (specify ref-type as an attribute); added descriptive fields intended for pop-up use, e.g. "First Floor" title, optional price (esp. for elevations) - Spec Move-In-Date simplified; builders can send in either Month or Day (full-date) format; availability to be displayed as month/year only.
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6/2001	1.0 (preview)	First publication.
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Appendix A. Standard definitions

Following are definitions generally followed by BHI throughout its schema.

Builder. A builder is a corporation which builds homes for sale to consumers. At this time, builders are limited to displaying properties for sale in the United States only.

Divisions are functional or legal organizational units which are owned by a parent builder; each is also considered a builder to simplify data file organization. They may be subsidiary companies (e.g. Milburn Homes is a division of DR Horton, Inc.) or divisions used for distinguishing sales territories (e.g. the Dallas division of Continental Homes). Divisions may be branded or unbranded (inherits parent's branding information) depending on how the builder wishes to represent their properties.

Subdivision and (Builder) Community. A subdivision is an area where a specific builder is constructing new homes for sale. Because subdivisions are always tied to a particular builder, these are often referred to by BHI as builder-communities. Subdivisions are often characterized as being of a certain *type* (Master Planned, Gated, Active Adult, etc.), and having certain *amenities* (Golf Course, Trails, etc.).

Important: To provide a high-quality searching experience for consumers, BHI generally attempts to relate multiple builder-communities which may exist within a (master) planned community. Consumers may not be aware that multiple builder subdivisions co-exist in the same geographic area.

Plan. A plan (short for floor-plan) is a generalized configuration of rooms into a standard arrangement for a home. A given plan can typically be "reversed" (footprint reflected left-to-right across the depth-axis) without forming a new plan, but this is not required by the schema.

Important: As standard configurations and base pricing can vary dramatically based on location, at this time *plans are defined at the Subdivision level only*. Therefore, if a builder sells an identical plan in multiple subdivisions, the plan details must be copied to each and a unique PlanNumber (e.g. prepended with a Subdivision ID) created for each.

A plan is the key element of a NewHome listing. Properly defined, a plan record can be used to represent many different configurations, and its content can be used to quickly create spec-home listings which are based on that house plan. Plans are generally offered for sale as catalog items, but this is not absolutely required; a builder who exclusively sells homes as specs can indicate that plans should not display as their own listing (by using the PlanNotAvailable element).

Important: Please note that BHI considers differing elevations to be forms of plan options, not distinct plans in their own right. For example, if a builder offers "The Maple" with any of three exteriors, the builder should generally **not** submit them as three plans, e.g. "The Maple A," "The Maple B", and "The Maple C". Instead, the builder should submit a single plan, and take advantage of the elevations feature of the schema to submit the different elevation choices as images. Future extensions of the product will allow for elevation pricing to be taken into account.

Spec. A spec home is a plan under construction at a specific homesite (on a given lot). Generally speaking, spec homes should have estimated move-in availability dates.

Important: spec homes are expected to have definite (postal-complete) street addresses, for display to consumers. This address should be the legal address of the homesite; substituting the address of the sales office is allowable, but discouraged.

Since specs are defined as child elements of a plan, generating listings for spec homes can be very fast if a robust plan record has been created. *This is a key difference between the NewHome approach to listing homes from resale-oriented real estate listings.*

One common spec home found in a community is the sales model, which may be listed for sale as the builder's inventory of lots in that area sells out.

Options. In terms of the NewHomeSource product, options refer to “plan” or “structural” options – predetermined choices which alter the floorplan configuration – as opposed to “design options” such as exterior siding/brick, wallcovering, flooring, etc.

Floor plan options at this time are considered to be one of the following types based on common home-marketing criteria: Bedroom, Bathroom, Garage (# of cars), Living Area, and Basement.

The NHlist schema works best for *additive* options – options which add a determined square footage and price to a base plan.

Note that *Spec homes* typically do not allow for plan options; they are often preconfigured to a particular combination of plan and option(s), if any were selected prior to construction.

Home pricing. Because most new home plans allow for customizations – including design options which are outside the scope of this product – which may alter the final closing price, price is obtained and marketed to a consumer as a “base price”. Base price is the builder's closest representation of a home's likely selling price within its community with minimum options.

True base price. Based on best e-commerce practices, BHI encourages builders to use “true base pricing” when marketing their plans and specs. *This is not enforced by the schema, however; price values submitted are at the builder's discretion.* True base pricing encourages prices which

- do not represent selling price as a range, or as a rounded-down number (e.g. nearest \$10,000)
- represent a possible selling price for that plan within the community
- include some configuration of standard finish package; there should be no “required” options above the listed BasePrice

Price disclaimer. Whenever prices are displayed to consumers on NewHomeSource, they carry a standard disclaimer that homes are “priced from” the values displayed on the site and that the consumer must contact the builder's sales agent(s) for actual prices. Therefore, builders should not feel unduly constrained by the true base price model.

Square Footage. Similar to price, square footage should be listed as base (finished) square footage for the plan. Unfinished or unheated square footage, such as garages and basements, should generally *not* be included in the listed square footage for the home.

Appendix B. Error messages

(Contact your BHI representative to set an Error Reporting Address to which error files will be sent.)

Level	Error location and message	Resolution steps
File	The incoming feed could not be validated against the NHlist schema.	Use an XML validator to check for invalid structure and/or data within your file. <i>See FAQ section of this guide.</i>
Corporation	<CorporateBuilderNumber> CorporateBuilderNumber cannot be NULL.	Ensure that a unique string exists for this element, e.g. "ALMCORP"
	<CorporateState> CorporateState cannot be NULL.	Ensure that a string exists for this element, e.g. "CA"
	<CorporateName> CorporateName cannot be NULL.	Ensure that a string exists for this element, e.g. "Almond Homes Corporation"
Builder	<BuilderNumber> BuilderNumber cannot be NULL.	Ensure that a unique string exists for this element, e.g. "A1WEST"
	<BrandName> BrandName cannot be NULL.	Ensure that a string exists for this element, e.g. "Almond Homes"
	<ReportingName> ReportingName cannot be NULL.	Ensure that a string exists for this element, e.g. "Almond Homes – West Region"
	<DefaultLeadsEmail> DefaultLeadsEmail cannot be NULL.	Ensure that an email address exists for this element, e.g. "leads@somebuilder.com"
	<DefaultLeadsEmail> This email address is already assigned as the CorporateReportingEmail recipient. Therefore, it cannot be re-assigned as a the DefaultLeadsEmail recipient.	Specify a different email address. <i>CorporateReportingEmail must be globally unique; it cannot be reused at the <Builder> level.</i>
Subdivision	Subdivision could not be set ACTIVE. Either there were 0 plans for this Subdivision, or all of the Plan nodes under this Subdivision caused errors.	Ensure that Plan nodes exist and are valid within this subdivision. <i>Exception: ComingSoon and BuildOnYourLot subdivisions may be Active without plans.</i>
	<Subdivision Status="ComingSoon"> ComingSoon community must specify PriceLow / PriceHigh values, or include at least one Plan node.	For a ComingSoon-status subdivision, ensure that a price range is available. <i>Either (a) assign Plans (BasePrice used to determine range), or (b) explicitly set values for the PriceLow and PriceHigh attributes.</i>
	<Subdivision Status="ComingSoon"> ComingSoon community should have nonzero PriceLow / PriceHigh values.	Ensure that prices are within NHS min/max price boundaries.
	<SubdivisionNumber> SubdivisionNumber cannot be NULL.	Ensure that a non-null string value exists for this element.

Level	Error location and message	Resolution steps
	<SubdivisionName> SubdivisionName cannot be NULL.	Ensure that a non-null string value exists for this element.
	<SubLeadsEmail> This email address is already assigned as the CorporateReportingEmail recipient. Therefore, it cannot be re-assigned as a SubLeadsEmail recipient.	Specify a different email address, or remove SubLeadsEmail for this subdivision. <i>CorporateReportingEmail must be globally unique; it cannot be reused at the Subdivision level.</i>
	<Address OutOfCommunity="1"> OutOfCommunity flag for the SalesOffice is set to TRUE, but required SubAddress information was not provided.	Either ensure that a <SubAddress> node with required community address exists for this subdivision, or change the OutOfCommunity attribute to ="0".
	<State> Invalid State "ZZ".	Ensure that state abbreviation matches a USPS 2-char state code.
	<ZIP> Invalid ZIP "99999".	Check ZIP code against current USPS data to ensure it is valid.
	<Phone> Sales-office Phone number must be 10 digits.	Ensure that 10 digits exist: area code (3 digits), prefix (3 digits), and suffix (4 digits).
	<SubState> Invalid State "ZZ".	Ensure that state abbreviation matches a USPS 2-char state code.
	<SubZIP> Invalid ZIP "99999".	Check ZIP code against current USPS data to ensure it is valid.
	<SubAmenity> SubAmenity type cannot be NULL.	Ensure that the Type attribute contains an enumerated string value, e.g. "GolfCourse".
	<UtilityName> UtilityName cannot be NULL.	Ensure that a string name exists, e.g. "West Atlantic Electric & Gas".
Plan	<PlanNumber> PlanNumber cannot be NULL.	Ensure that a non-null string value exists for this element, e.g. "A123". (Must be unique within the parent Subdivision.)
	<PlanName> PlanName cannot be NULL.	Ensure that a non-null string value exists for this element, e.g. "The Windermere".
	<BasePrice> BasePrice cannot be NULL, less than 40000, or greater than 7000000.	Ensure that a non-null decimal value exists and is within NHS price boundaries.
	<BaseSqft> BaseSqft cannot be less than 500 or greater than 12000.	Ensure that square footage value is within NHS square footage boundaries, or else set to null.
	<Baths> Baths cannot be NULL or 0.	Ensure that a positive integer value exists.
	<Bedrooms> BasePrice cannot be NULL or 0.	Ensure that a positive integer value exists.
	<Garage> Garage cannot be NULL.	Ensure that a non-null decimal value exists and is within NHS price boundaries.
	<Option Type="Basement"> This plan already has a Basement element attached. Cannot specify another basement as an Option.	Remove the Basement option, or else remove the <Basement> node. Only one basement can exist for a plan.

Level	Error location and message	Resolution steps
Spec	<SpecNumber> SpecNumber cannot be NULL.	Ensure that a non-null string value exists for this element. (Must be unique within the parent Subdivision.)
	<SpecPrice> BasePrice cannot be NULL, less than 40000, or greater than 7000000.	Ensure that a non-null decimal value exists and is within NHS price boundaries.
	<SpecSqft> SpecSqft cannot be less than 500 or greater than 12000.	Ensure that square footage value is within NHS square footage boundaries, or else is set to null.
	<SpecBaths> SpecBaths cannot be NULL or 0.	Ensure that a positive integer value exists, or remove this element (to inherit values from plan).
	<SpecBedrooms> BasePrice cannot be NULL or 0.	Ensure that a positive integer value exists, or remove this element (to inherit values from plan).
	<SpecGarage> Garage cannot be NULL.	Ensure that a positive integer value exists, or remove this element (to inherit values from plan).
	<SpecCity> SpecCity cannot be NULL.	Ensure that a string exists, e.g. "Springfield".
	<SpecState> SpecState cannot be NULL.	Ensure that a valid string exists, e.g. "MO".
	<SpecState> Invalid State "ZZ".	Ensure that state abbreviation matches a USPS 2-char state code.
	<SpecZIP> SpecZIP cannot be NULL.	Ensure that a valid string exists, e.g. "12345".
	<SpecZIP> Invalid ZIP "99999".	Check ZIP code against current USPS data to ensure it is valid.