

Automated Margin Calculations & Analysis in NewStar

Cornerstone Best Practice Series

(Model & Anchor Estimates, Selling Budgets and Estimated Cost to Complete)

Overview

One of the best features of NewStar Enterprise is its ability to forecast and track margins throughout a home's life cycle: from inception to years after a home has been sold and closed. This core functionality is unique to NewStar; many of its clients have learned a lot about the ebb and flow of margins at a Lot level and have come to believe in a single system solution for tracking and analyzing their margins. Companies not using this core functionality are dependent on multiple departments maintaining their own spreadsheets which may or may not capture 100% of the cost incurred during and after the build cycle, ultimately impacting the bottom line.

At Cornerstone, we find that companies calculating their margins outside of the core system are overstating their margins anywhere from 3 to 8 percent, especially for variances and after-sales costs which are not captured during the Cost of Sales (COS) process. These margin "swings" are rarely reported to management and fall through the cracks until a community needs to be closed after the last lot has been sold. For those companies using NewStar to generate margins, they are able to address variances and overruns in a timely fashion, avoiding last minute margin adjustments due to inaccurate calculations and reporting; not to mention the embarrassment of explaining cost overruns to management and auditors.

Estimates/Budgets (Margin Analysis Tools)

NewStar has multiple estimates/budgets for capturing margin data which are populated throughout the life cycle of a home. These budget types are as follows:

- 1) Model/Plan Estimate
- 2) Lot Anchor Estimate
- 3) Revised Budget Estimate
- 4) Selling Budget Estimate
- 5) Estimated Cost to Complete

These budgets are important because they determine the expected and actual margins earned per Lot, including plan/model and elevation.

Model Estimate - the budgeting process begins with the model estimate/budget. This budget is developed to determine the cost of a base model and in some instances to derive the selling price per model. The model estimate may be better known as a "guesstimate" because it relies on the experience of the purchasing department to assign a value to each craft/trade before the model has been let for bid. The model estimate is an important budgeting tool because it reflects the forecasted sales price and costs associated with a plan/elevation when a phase or communities have been green-lighted. In many cases management has made a decision to move forward with a community based on reasonable assumptions for average price and costs reflected in the model estimate.

It should be noted that NewStar has two types of model estimates. The first is a **Best Case Scenario** and the second is the **Calculated Estimate**, which is derived from the actual vendor pricing. Some builders choose to keep these values pure and not comingle them due to the decision to build the plan based on a set of assumptions and the necessity to vet those assumptions after bids are awarded to preferred vendors. This is the beginning of the margin story because these numbers reflect the margins management expected when the project was green-lighted.

Here is an illustration of a NewStar model estimate for Plan AAAA at XXXX Subdivision including the original model estimate and calculated estimate derived from the actual vendor pricing.

Major Code	Major Code Description	Minor Code	Model Estimate (Best Estimate)	Calculated Estimate (Vendor Bids)
XXXX	Permits	00 Base	500.00	500.00
XXXX	Arch & Engineer	00 Base	1,250.00	1,350.50
XXXX	Foundation	00 Base	15,000.00	16,500.00
XXXX	Framing	00 Base	25,000.00	24,950.00
XXXX	Roof	00 Base	8,900.00	7,000.00
XXXX	Windows	00 Base	7,500.00	8,000.00
Total Cost			58,150.00	58,300.50
Base House Rev			130,000.00	130,000.00
Gross Margin			55%	55%

Lot Anchor Estimate - when a model is released for sale or construction the model estimate is copied into the Lot Anchor Estimate at the beginning of construction. The Lot Anchor Estimate is also known as the **Original Budget**. It is created and memorialized at the beginning of the build cycle and does not change. This anchor estimate is the best estimate of the actual cost of construction because it is dependent on supplier data and not guesstimates. Additionally, Accounting will add line items and cost for land, closing costs, commissions and allocable expenses captured at the project level, such as superintendent salaries and bonuses. Any supplier price adjustments or scope changes will be captured in change orders and variance purchase orders. The segregation of these changes will prove to be useful when explaining margin variance to management at throughout the build cycle.

Here is an illustration of a Lot Anchor Estimate, Revisions and Total Revised Estimate for Plan AAAA at XXXX Subdivision including the calculated estimate derived from the actual vendor pricing and the additional line items added by Accounting.

Major Code	Major Code Description	Minor Code	Lot Anchor Estimate	Revisions	Total Revised Estimate
XXXX	Permits	00 Base	500.00		500.00
XXXX	Arch & Eng	00 Base	1,350.50		1,350.50
XXXX	Foundation	00 Base	16,500.00		16,500.00
XXXX	Foundation	05 Variance		500.00	500.00
XXXX	Framing	00 Base	24,950.00		24,950.00
XXXX	Roof	00 Base	7,000.00	2,000.00	9,000.00
XXXX	Windows	00 Base	8,000.00		8,000.00
XXXX	Lot Cost	00 Base	20,000.00		20,000.00
XXXX	Closing Cost	00 Base	3,000.00		3,000.00
XXXX	Allocable Cost	00 Base	2,500.00		2,500.00
Total Cost			83,800.50	2,500.00	86,300.50
Base Rev			130,000.00		130,000.00
Gross Margin			36%		34%

Selling Budget - The last and most comprehensive budget is the **Selling Budget**, which is created when a home is sold or a spec is released for construction. The creation of the Selling Budget is similar to the Lot Anchor Estimate but will include option sales revenue and cost as well as discounts and incentives. As with the Lot Anchor Estimate, the Selling Budget calculates margins based on purchasing, accounting and sales data. When a home is finally sold and closed, the cost of sales margins will be compared to both the original Lot Anchor Estimate and the Selling Budget to reconcile differences between expected margins at the time of sales and actuals when a home is sold and closed. This information will be used by the executive team for making decisions regarding profitability and determine whether or not the business is meeting its business objectives.

Here is an illustration of a Selling Budget (with revised estimates) for Plan XXXX at XXXX Subdivision including the calculated estimate derived from the actual vendor pricing and the additional line items added by Accounting.

Major Code	Major Code Description	Minor Code	Total Revised Estimate	Selling Budget
XXXX	Permits	00 Base	500.00	500.00
XXXX	Arch & Eng	00 Base	1,350.50	1,350.50
XXXX	Foundation	00 Base	16,500.00	16,500.00
XXXX	Foundation	01 Option		3,500.00
XXXX	Foundation	05 Variance	500.00	500.00
XXXX	Framing	00 Base	24,950.00	24,950.00
XXXX	Roof	00 Base	9,000.00	9,000.00
XXXX	Windows	00 Base	8,000.00	8,000.00
XXXX	Window Opt	01 Option		1,000.00
XXXX	Lot Cost	00 Base	20,000.00	20,000.00
XXXX	Closing Cost	00 Base	3,000.00	3,000.00
XXXX	Allocable Cost	00 Base	<u>2,500.00</u>	<u>2,500.00</u>
Total Cost			86,300.50	90,800.50
Base Rev			130,000.00	130,000.00
Option Rev			0.00	18,000.00
Total Rev			130,000.00	148,000.00
Gross Margin			34%	39%

Some NewStar builders print a hardcopy of the Selling Budget and attach it to the sales contract for approval and signature by the Head of Sales, or whoever is responsible for signing sales and purchase agreements. In addition, this data is placed in the buyer file for future reference to determine whether or not the estimated margins were recognized at a Lot level.

It should be noted that all of the budgets/estimates mentioned previously are standard NewStar budgets and available in the system today without any additional charges or fees. The biggest challenge for realizing the extensive value of this functionality has to do with data integrity and timing: is the system being utilized correctly to capture the data in a timely fashion.

Estimated Cost to Complete / Cost of Sales Program

The next step for Margin Analysis is the actual margin recognized when a home is closed in NewStar. This process is usually performed by the Accounting department with assistance from purchasing. The Purchasing department will be responsible for generating and reviewing the estimated cost to complete report. This report calculates the projected cost for a home by reviewing the greater of actuals, budgets, and commitments for each major/minor code combination. The program and report can be generated on demand throughout the build cycle, until the cost of sales journal entry has been posted to the system. At this point the program is locked down by the system. The cost of sale program will generate a journal entry at the time of close for posting journal entries, however, the system lacks good reporting reflecting the line item details. Therefore, Cornerstone suggests companies generate the informXML Job Scrub report for each closed house to capture the line item details used to generate cost of sales and margin analysis. These reports should be filed in the buyer's permanent file as well as within the system for future analytics.

Here is a sample informXML Job Scrub report with Lot Anchor Estimate, Revisions, Selling Budget and Latest Estimates (also known as the estimated cost to complete) plus the actuals paid to date.

Project Code	Lot	Lot Status	Major Code	Major Description	Minor Code	Lot Anchor Estimate	Estimate Revisions	Lot Estimate Total	Selling Budget	Latest Estimate	Invoiced Amount
1234	0013	Closed	1110	Permits	00	\$500.00		\$500.00	\$500.00	\$500.00	\$500.00
1234	0013	Closed	1120	Arch & Eng	00	\$1,350.50		\$1,350.50	\$1,350.50	\$1,350.50	\$1,350.50
1234	0013	Closed	1130	Foundation	00	\$16,500.00		\$16,500.00	\$16,500.00	\$16,500.00	\$16,500.00
1234	0013	Closed	1130	Foundation	01			\$0.00	\$3,500.00	\$3,500.00	\$3,500.00
1234	0013	Closed	1130	Foundation	05		\$500.00	\$500.00	\$500.00	\$500.00	\$500.00
1234	0013	Closed	1140	Framing	00	\$24,950.00		\$24,950.00	\$24,950.00	\$24,950.00	\$24,950.00
1234	0013	Closed	1150	Roof	00	\$7,000.00	\$2,000.00	\$9,000.00	\$9,000.00	\$9,000.00	\$9,000.00
1234	0013	Closed	1160	Windows	00	\$8,000.00		\$8,000.00	\$8,000.00	\$8,000.00	\$8,000.00
1234	0013	Closed	1160	Windows	01			\$0.00	\$1,000.00	\$1,000.00	\$1,000.00
1234	0013	Closed	2010	Lot Cost	00	\$20,000.00		\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00
1234	0013	Closed	8010	Closing	00	\$3,000.00		\$3,000.00	\$3,000.00	\$3,000.00	\$5,500.00
1234	0013	Closed	8020	Allocable Cost	00	\$2,500.00		\$2,500.00	\$2,500.00	\$2,500.00	\$7,500.00
1234	0013	Closed	9010	Base House Revenue	90	-\$130,000.00		-\$130,000.00	-\$130,000.00	-\$130,000.00	-\$130,000.00
1234	0013	Closed	9020	Option Revenue	90				-\$18,000.00	-\$18,000.00	-\$18,000.00
1234	0013	Closed	9050	Incentive/Discount	95					\$10,000.00	\$10,000.00
				Margin			36%		34%	39%	32%

On this report, the reviewer can easily see the changes in margins from the original lot anchor estimate through the current period. I noted a couple of changes in yellow that happened late or after the home was sold. The first item is a \$10,000 incentive that was recorded during the cost of sales process. No one in the organization updated the system to reflect the incentive/discount until the sale and cost of sales were recorded by Accounting. Many builders fail to recognize incentives/discounts during the build cycle and do not include them in their margin calculation. Additionally, the closing costs (external commissions) and allocable costs (superintendent salaries, etc) were greater than originally projected for this community. These items were adjusted after the house closed and are reflected in the invoiced amount. It is not uncommon for costs to appear after a home has been closed because very few builders review closed homes for margin changes.

On a final note, the Job Scrub should be generated for a Lot when it is hard closed by the system. The hard closed Lot report is generated by the system months after the owner has taken possession and should include the final numbers for revenue and cost associated with the base house and options. It may also include warranty cost but this can be easily filtered out of the report. This final version will display all of the previous budgets, ECC calculation and final set of actual numbers. The margins can be generated for all of the aforementioned and available for the reviewer to determine any margin variance and the supporting reasons. These budgets and actuals will tell a necessary and interesting story - they will highlight to the viewer of those areas which are not working in harmony within the organization.