Researchers Update AGA Members on Proposed Diamond Cut Grading System

By Mauricio Minotta

GIA researchers participated in a multi-laboratory conference on diamond cut, hosted by the Accredited Gemologists Association (AGA), and presented information on the 16-year study that led to the development of the Institute's proposed diamond cut grading system.

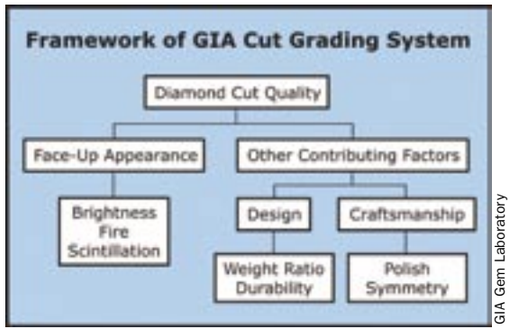
Ilene Reinitz, manager, Research and Development, and Al Gilbertson, Research associate, gave an overview of GIA's work, including a review of the computer modeling used to calculate brightness and fire, to a group of AGA members Feb. 2 in Tucson. They also covered the method used to assess pattern-related scintillation, design- and craftsmanship-related issues of cut quality, and the use of observation tests to refine and validate a comprehensive system of cut grading.

The results of the computer modeling and pattern formulas were supported by more than 70,000 human observations from individuals in the diamond industry and consumers.

"What's important to note is that the data collected from the observations was used to fine-tune our metrics and other cut quality assessments so we can accurately predict a cut grade for a round brilliant using its proportions and other design and craftsmanship factors," Gilbertson said.

They outlined the basic structure behind GIA's Diamond Cut Grading System, which considers seven components to determine a diamond's overall cut grade: brightness, fire, scintillation, weight ratio, durability, polish and symmetry. GIA is also developing a cut reference system to predict the cut grade of polished diamonds, they said.

"Not only has our research shown that a wider range of proportion sets are capable of producing great looking diamonds, but it is, as a whole, predictive," Reinitz said. "This is a major benefit to diamond manufacturers because they will be able to plan the cutting of their rough so that they receive high cut qualities while also being able to maximize yield."



GIA Gem Laboratory

The system will be available online; in a simplified printed form; and incorporated in optical measuring devices (like Sarin and OGI). It is scheduled to be available later this year.

GIA's presentation was followed by Peter Yantzer, director of the American Gem Society Laboratory, who discussed the AGS lab's revision of its cut grade for round brilliants and its forthcoming princess cut grade. The new system will allow for a wider set of proportions for the top "0" grade than is currently permitted, but Yantzer said some diamonds that previously received such a grade would fall short of the top grade.

The second portion of the seminar featured a panel discussion on technology-based light-performance measuring systems, with Richard Drucker, president of Gemworld International Laboratories; Lalit Aggarwal, president of ImaGem; Don Palmieri, president of the Gem Certification and Appraisal Lab; Nicholas Del Re, manager of gemological services, EGL-USA; Jean-Pierre Chalain, research director of the SSEF Swiss Gemmological Institute; and C. R. Beesley, president of the American Gemological Institute.

Most agreed that the Internet has been a major driver of premium-cut diamond sales and that measuring light performance of a diamond will become an important sales tool for store-based retailers because it can be easily demonstrated to consumers. Some pointed out that measuring light performance can be applied to fancy shapes and proprietary cuts, which are not yet graded for cut quality.

Although several approaches and systems were discussed, there was a general agreement that the trade, and the consumers they serve, will receive many benefits from the new methods of assessing the quality of cut in diamonds.

Senior industry analyst Russell Shor contributed to this story.

Cut FAQ

Will there be some way to know what cut grade different round brilliant proportion sets will receive without sending the diamond to the GIA Gem Laboratory?

Yes. GIA is developing several versions of a Diamond Cut Reference System that will make it possible for you to predict the estimated cut grade for round brilliant proportion sets. There are at least three versions planned for release: online; a simplified, portable, non-electronic version; and one that's incorporated into commonly used standard optical measuring devices so you can interactively plan for the optimal manufacture of rough and re-cut polished diamonds.

The GIA Diamond Cut Grading System is based on a predictive approach that combines the results of computer modeling with extensive observation testing and trade interaction. You can determine an estimated cut grade if you know the relevant proportions and finish grades of a round brilliant, but there are other factors that can, in some cases, affect the final cut grade the GIA Gem Laboratory will assign, such as differences in calibration and measurement tolerances of optical measuring devices; differences in the assignment of polish and symmetry grades; and differences caused by non-standard brillianteering (e.g. painting).

The only way to receive an actual GIA Cut Grade is to submit your diamond to the GIA Gem Laboratory.

Will I have to resubmit every diamond that was previously issued a report by GIA to get a new report with the cut grade?

No. The GIA Gem Laboratory will capture all of the information necessary to generate the cut grade and re-issue reports for previously graded diamonds without seeing the diamond again. The issue dates for existing reports that will qualify for this service, along with other details, are being finalized and will be announced in the near future.

How will I be able to attain the necessary measurements of a round brilliant if I do not use an optical measuring device or if my diamond is already mounted in jewelry?

GIA is developing a measuring accessory that you will be able to use with professional gemological microscopes to measure all of the necessary proportions that determine a cut grade. This tool, along with other measuring techniques such as calipers, table gauges and visual estimation, will also help you measure mounted diamonds.