resulting in less than desired acoustic performance of the affected cells. While certain types of aircraft have allowable acoustic loss at acoustic panels within acoustic structures, regulations for other aircraft types may not permit structural rework of such areas, resulting in part replacement at significant cost. Further regulations may allow for the replacement of a portion of the acoustic panels if acoustic performance is restored. However, restoring acoustic performance for reworked acoustic panels and structures comprising acoustic panels, such as aircraft nacelles, thrust reversers, etc., has presented continuing challenges.

## SUMMARY

Aspects of the present disclosure are directed to methods for reworking structures comprising cellular core panels and reworking cellular core panels, reworked structures comprising the reworked core panels, and guides for reworking cellular acoustic panels and non-acoustic panels, as well as cutting apparatuses for reworking the core panels in larger structures, preferably *in situ*. Further aspects are directed to reworking acoustic panels and structures comprising the panels, with the panels comprising reworked core sections including, without limitation, honeycomb core sections in acoustic panels and structures comprising the panels.

An aspect of the present disclosure provides an apparatus for reworking a panel, the apparatus comprising a cutting instrument and a guide for the cutting instrument. The guide comprises a base, at least one leg in communication with the base, and a guide slot extending longitudinally through the base. The at least one leg is dimensioned to mate with a cellular core cell in the panel, the cellular core cell comprising a plurality of cell walls, the cell walls comprising a cell wall juncture. The guide slot defined by the leg and the base, the guide slot positioned proximate to the cell wall juncture of adjoining cellular core cells and configured to selectively receive the cutting instrument. When the cutting instrument is positioned in the guide slot, the cutting instrument is configured to sever at least one cell wall of the cellular core cell completely from an adjoining cell wall at the cell wall juncture to form at least one of: a cellular section rework plug comprising intact core cells, or a cut-out cellular core section comprising intact core cells.

A further aspect of the present disclosure is directed to a guide for a cutting instrument, with the guide comprising a base, at least one leg in communication with the base, and a guide slot extending longitudinally through the base, with the guide slot defined by the at least one leg and the base.

In another aspect, the guide comprises a plurality of legs in communication with the base.

A further aspect of the present disclosure is directed to reworking a portion of an aircraft using a guide for a cutting instrument, with the guide comprising a base, at least one leg in communication with the base, and a guide slot extending longitudinally through the base, with the guide slot defined by the at least one leg and the base.

Another aspect of the present disclosure is directed to an apparatus comprising a guide, with the guide comprising a base leg, with the leg dimensioned to engage and extend into, and be received by, a cell in a cellular core section. The cellular core section includes a plurality of cell walls, with the guide comprising a guide slot defined by the leg and the base, with the guide slot extending longitudinally within the guide, and a cutting instrument dimensioned to be received by the guide slot.

## CLAIMS

1. An apparatus for reworking a panel, the apparatus comprising:

a cutting instrument; and

a guide for the cutting instrument, the guide comprising:

a base;

at least one leg in communication with the base, the at least one leg dimensioned to mate with a cellular core cell in the panel, the cellular core cell comprising a plurality of cell walls, the cell walls comprising a cell wall juncture; and

a guide slot extending longitudinally through the base, the guide slot defined by the leg and the base, the guide slot positioned proximate to the cell wall juncture of adjoining cellular core cells and configured to selectively receive the cutting instrument,

wherein when the cutting instrument is positioned in the guide slot, the cutting instrument is configured to sever at least one cell wall of the cellular core cell completely from an adjoining cell wall at the cell wall juncture to form at least one of: a cellular section rework plug comprising intact core cells, or a cut-out cellular core section comprising intact core cells.

2. The apparatus of Claim 1, wherein the guide comprises a plurality of legs in communication with the base.

3. The apparatus of Claim 1, wherein the cutting instrument comprises a blade, the blade configured to move within a length of the guide slot, the blade comprising a leading cutting edge.

4. The apparatus of Claim 3, wherein the guide slot is further configured to guide the leading blade edge to engage the cell wall.

5. The apparatus of claim 1, wherein the guide further comprises a handle extending longitudinally from the base, wherein the handle is configured to allow a user to selectively mate the at least one leg with the cellular core cell.

6. The apparatus of Claim 1, wherein the guide is configured to direct the cutting instrument proximate to the cell wall juncture.