is obtained from the given differential d by passing to the quotient. The cohomology of $\{E_0, d_0\}$ is

$$E_1^{p,q} = \frac{\ker d_0}{\operatorname{im} d_0} = \frac{\{a \in F^p K^{p+q} : da \in F^{p+1} K^{p+q+1}\}}{d(F^p K^{p+q-1}) + F^{p+1} K^{p+q}}$$

$$= H^{p+q}\left(\frac{F^p K^*}{F^{p+1} K^*}\right)$$

$$= H^{p+q}(Gr^p K^*)$$

as specified.

⌜

$$\begin{tikzcd}
E_0^{p,q-1} \arrow[r, "d_0"] \arrow[d, equal] & E_0^{p,q} \arrow[r, "d_0"] \arrow[d, equal] & E_0^{p,q+1} \arrow[d, equal] \\
\dfrac{F^p K^{p+q-1}}{F^{p+1} K^{p+q-1}} \arrow[r, "d_0"] & F^p K^{p+q} / F^{p+1} K^{p+q} \arrow[r, "d_0"] & F^p K^{p+q+1} / F^{p+1} K^{p+q+1}
\end{tikzcd}$$

$$E_1^{p,q} = \frac{\ker d_0}{\operatorname{im} d_0} = H^{p+q}\left(\frac{F^p K^*}{F^{p+1} K^*}\right) \quad \text{as a definition}$$

Don't misunderstand this as

$H^{p+q}(F^p K^*)$, since $\{a \in F^p K^{p+q} : da \in F^{p+1} K^{p+q+1}\}$

$\neq$ $\ker d + F^{p+1} K^{p+q}$ in general.

Since $\dfrac{F^p K^r}{F^{p+1} K^r} = Gr^p K^r$, $\quad H^{p+q}(Gr^p K^*) = H^{p+q}\left(\dfrac{F^p K^*}{F^{p+1} K^*}\right)$. ⌟